The Mining Journal

Established 1835 — Railway & Commercial Gazette

Vol. CCXLI No. 6161 — LONDON, SEPTEMBER 18, 1953 — PRICE 8d

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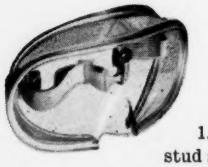

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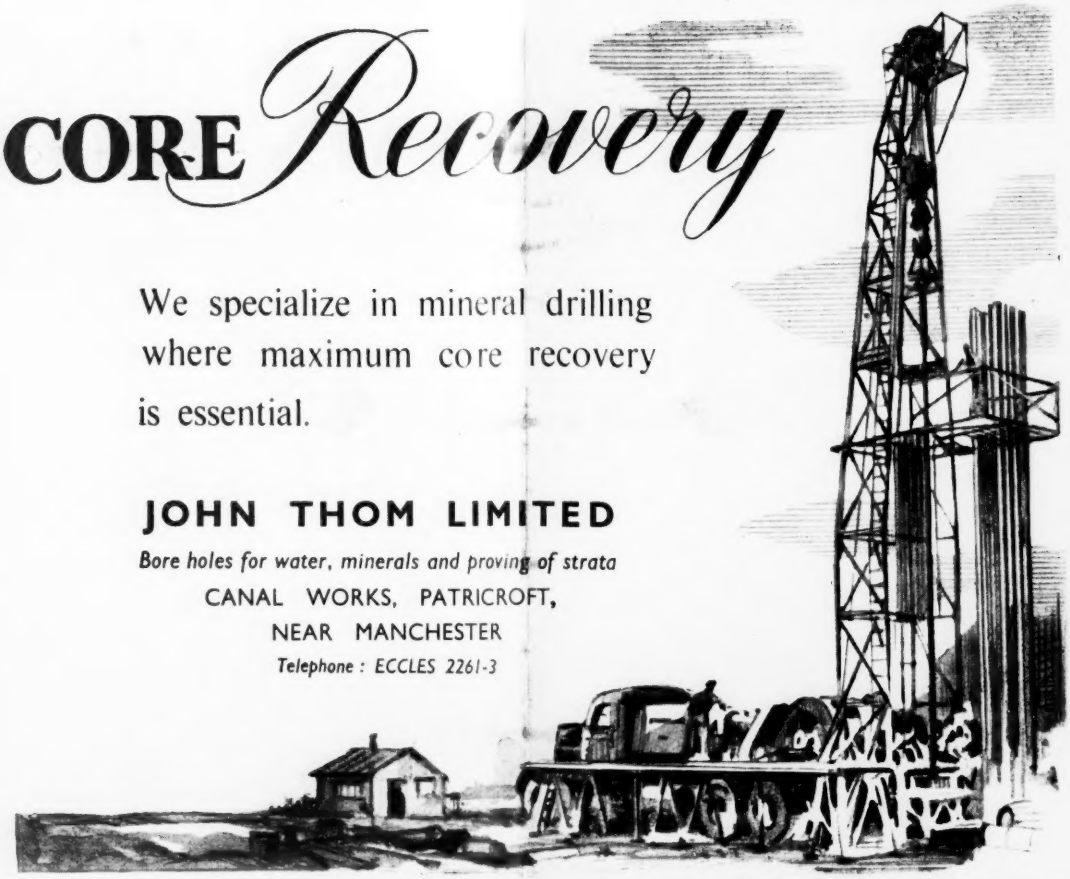

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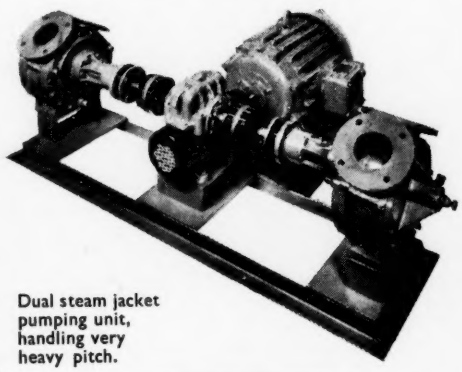

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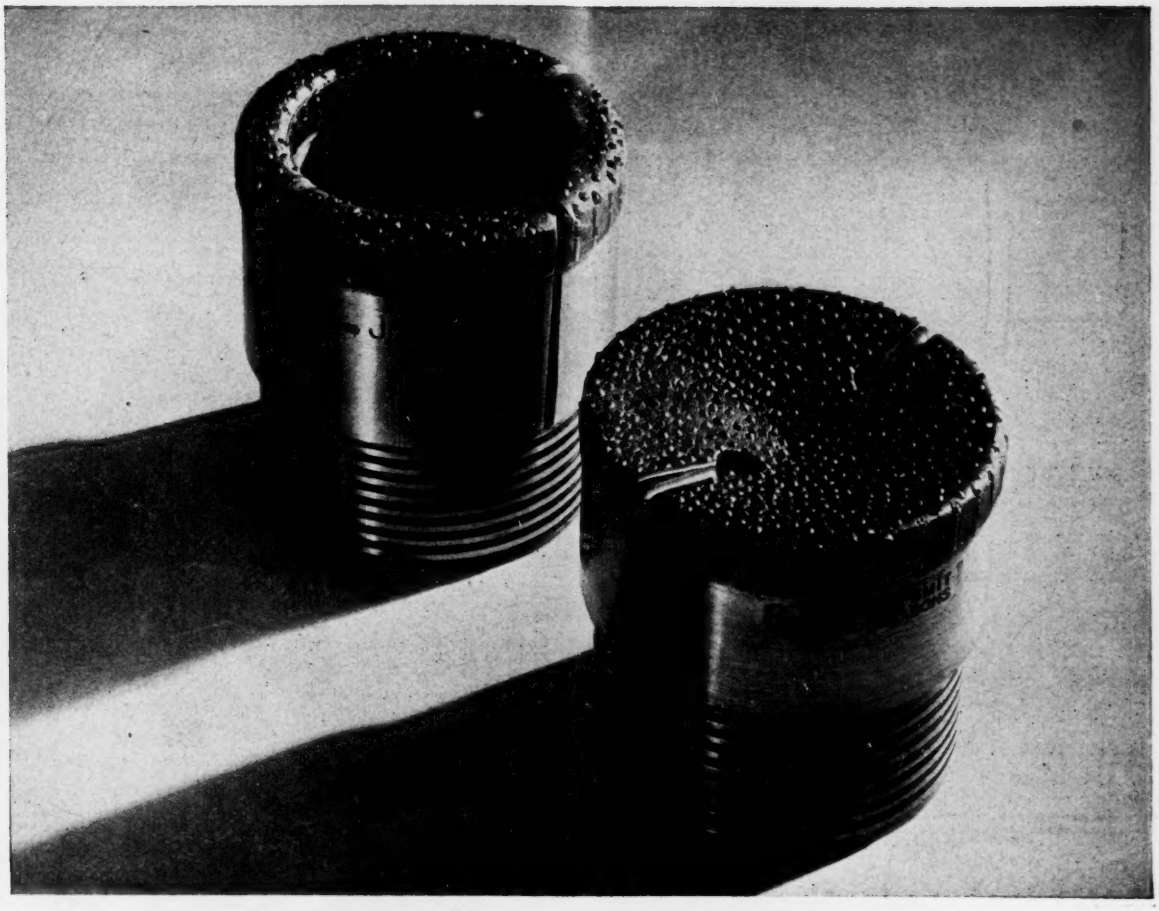

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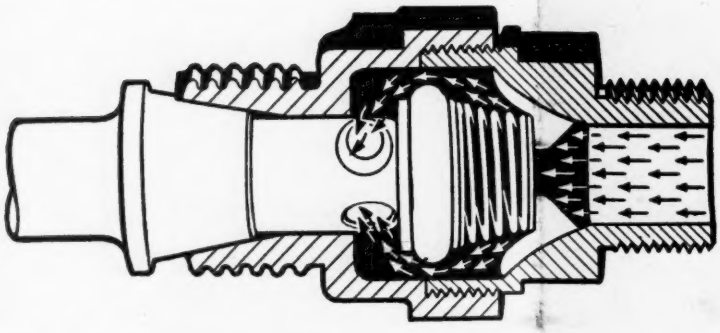

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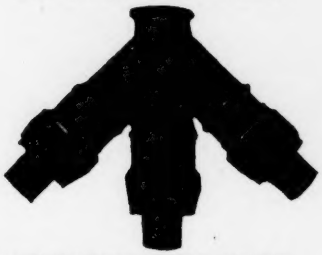

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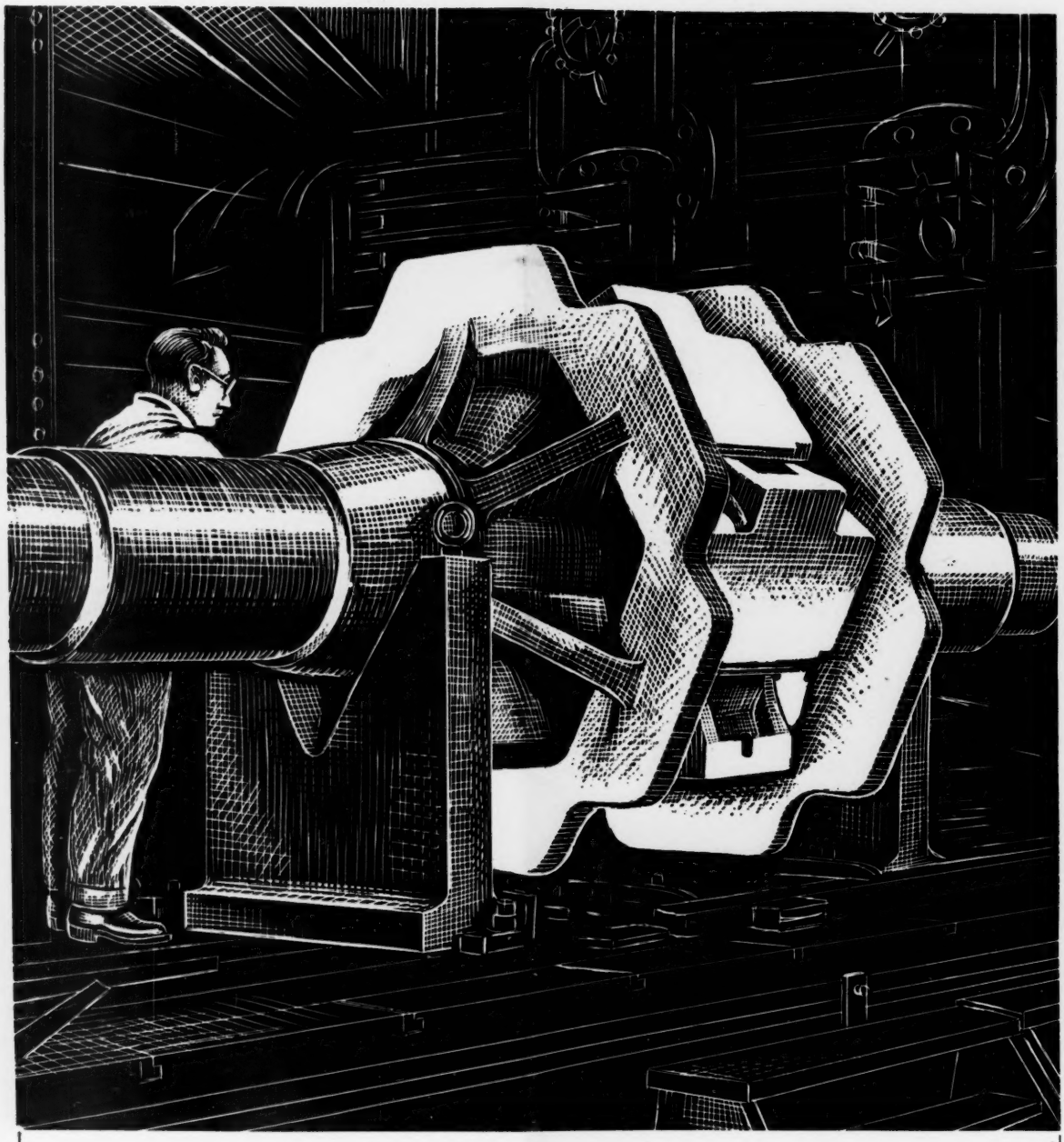

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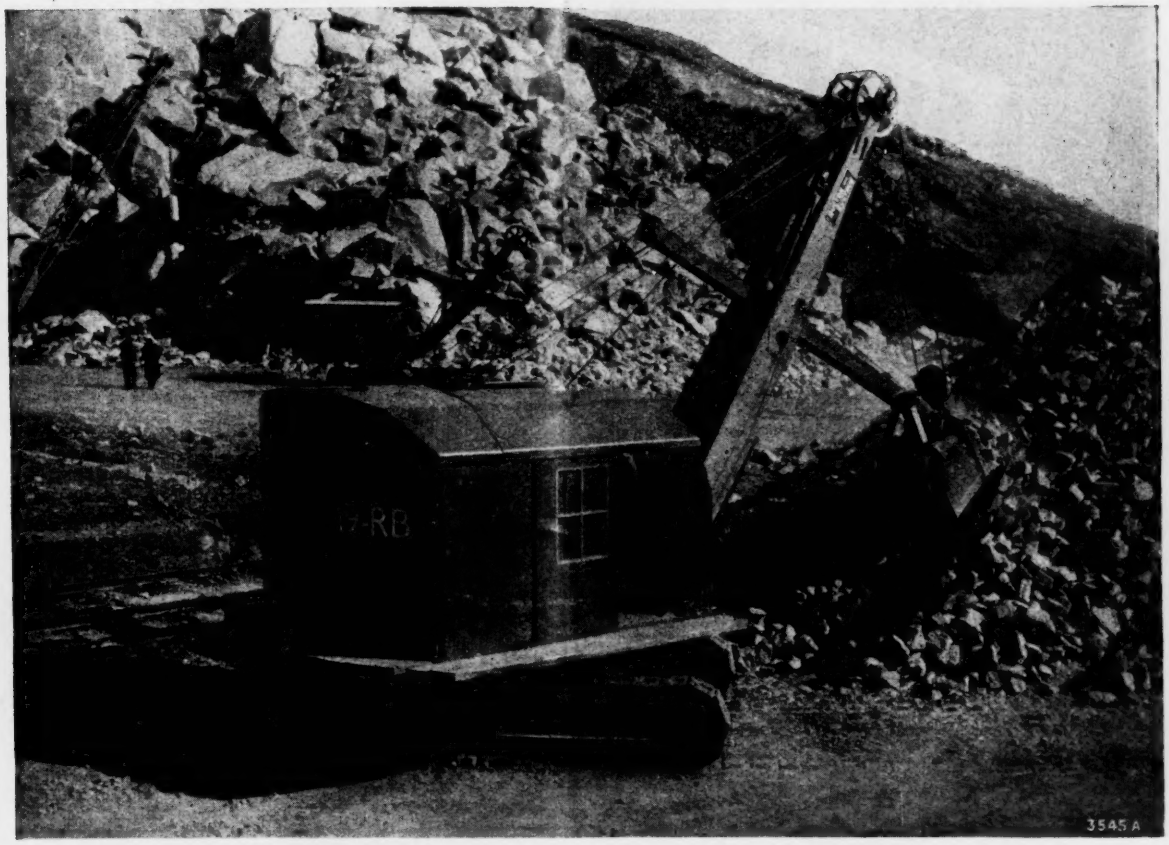

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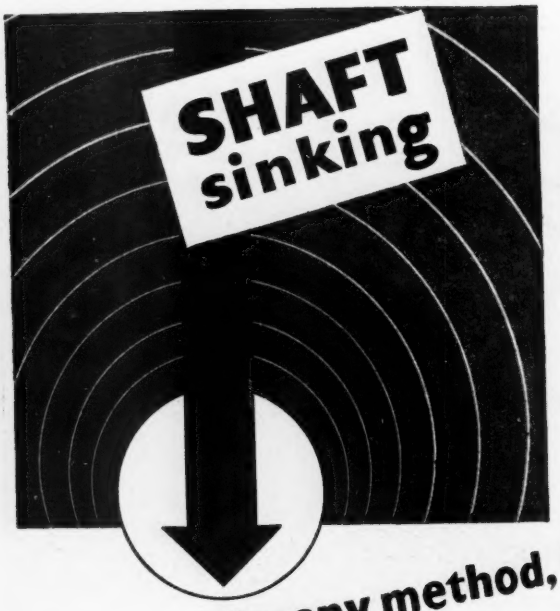

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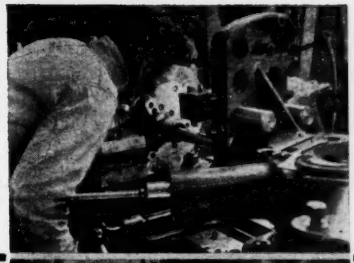

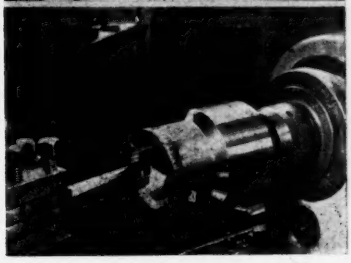

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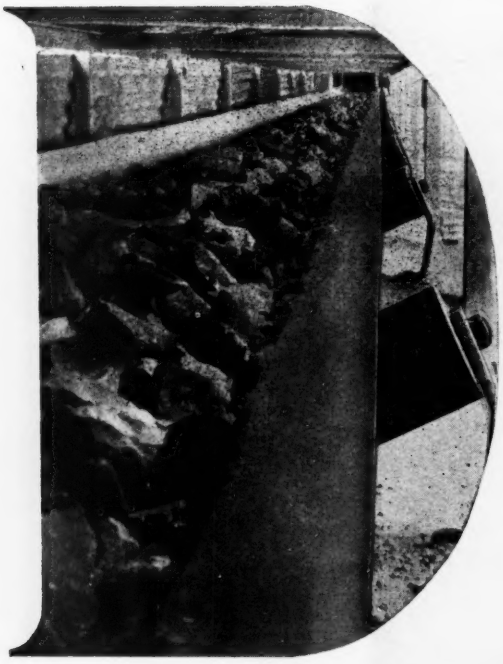

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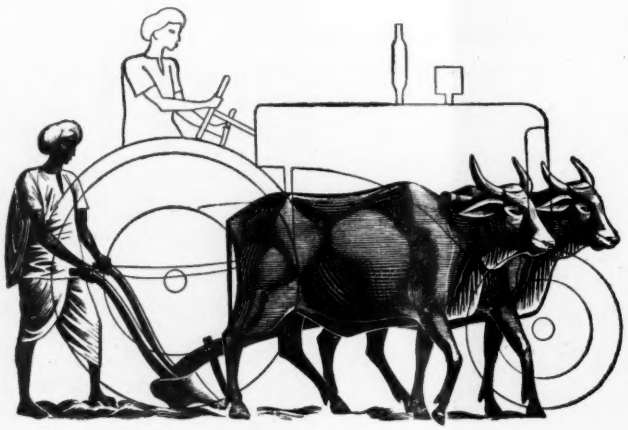

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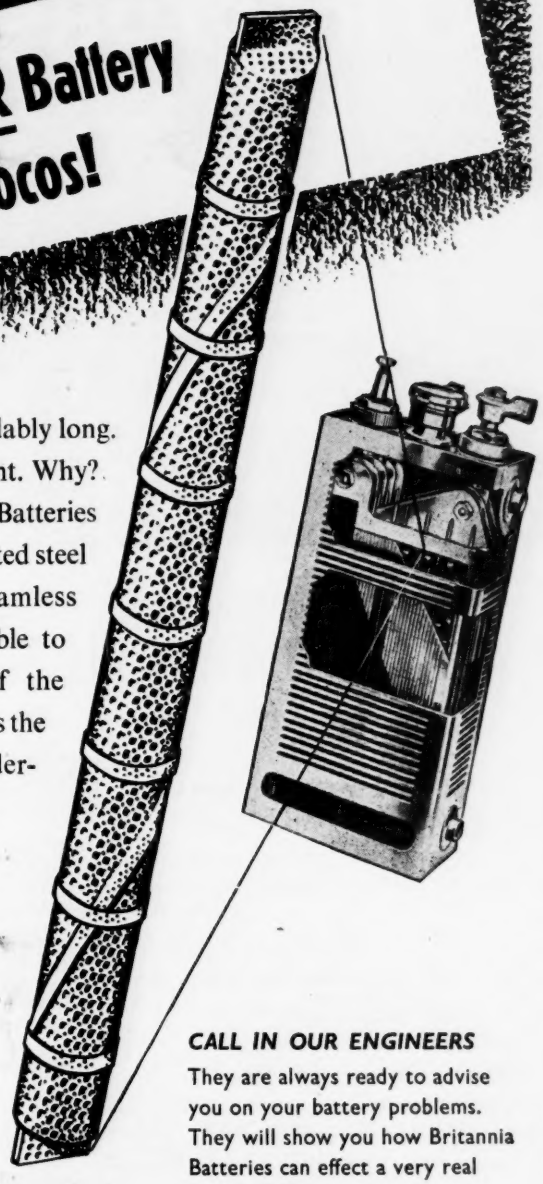

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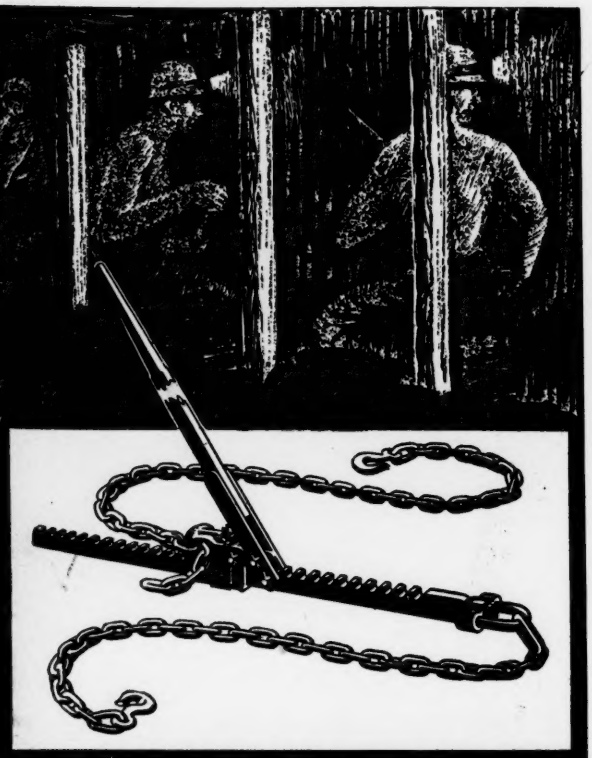

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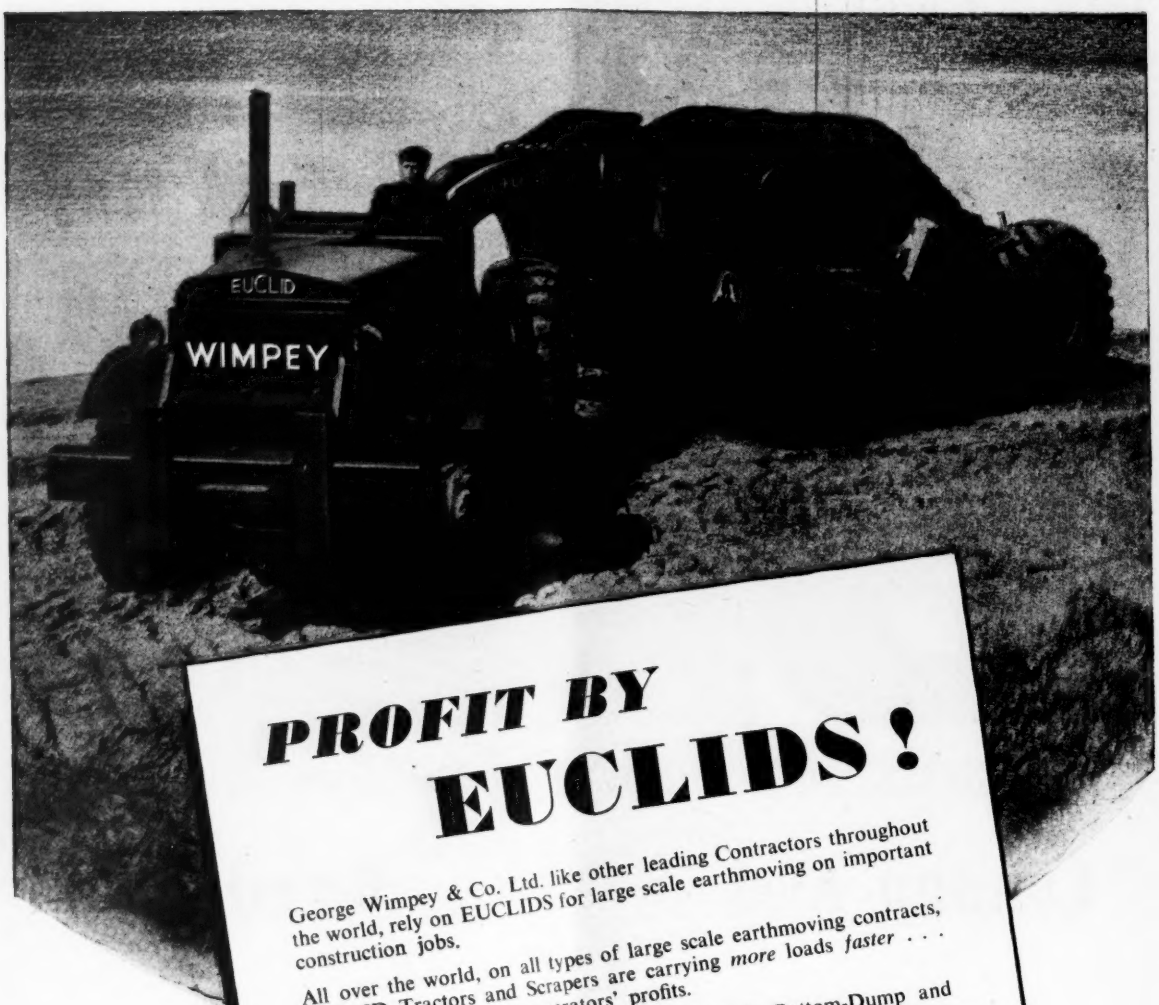

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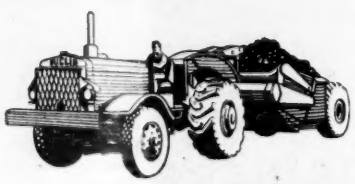

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The Mining Journal

Established 1835

Vol. CCXLI No. 6161 LONDON, SEPTEMBER 18, 1953 PRICE 8d

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NOTES AND COMMENTS

The I.M.F. Report on Dollar Shortages

The annual report of the International Monetary Fund presented at the end of last week in Washington to the Board of Governors declared that there was ground for cautious optimism with regard to the attainment and maintenance of an approximate balance in payments between the United States and the rest of the world.

This approximate balance achieved at the end of 1952 was, however, aided by temporary elements such as the high level of U.S. Government off-shore purchases which last year totalled $2,500,000,000. Nevertheless, the I.M.F. suggests that these payments may be expected to continue and even to increase in the immediate future, so that though in the short term, at any rate, the improvement in the world's balance of payment in 1952 appears to have some elements of permanency, in the long run it is quite obvious that a high level of off-shore purchases cannot be viewed as a permanent substitute for a high rate of commercial imports.

That being so, there is a good deal of scope for the initiation of policies required to reduce still further the problem of dollar shortages. On this question the Report asserts that appropriate action is called for alike by the United States, by other industrial countries, and by the under-developed countries. The Report concludes that the current dollar situation may improve gradually over the next few years if action of adequate scope is taken in time even in the face of any decline in U.S. Government expenditure abroad.

While the improvement in the world's payment position has been reflected by the rise in gold and dollar holdings outside the U.S., the Report draws attention to the policy decisions undertaken by the various countries which made this possible, particularly the imposition of more stringent import restrictions and the resort to monetary and fiscal policies to keep both consumption and investment demands within the limits set by the resources available.

These vital policy decisions achieved their purpose but the resultant narrowing of the dollar gap, in terms of the balance of payments statistics at any rate, did not indicate what potential demand for dollar commodities would be should these import restrictions be removed. There were, of course, different views as to the size and extent of this suppressed demand but, the Report said, the restrictive effects of the imposition of import restrictions imposed to meet an emergency situation were likely to be diminished if disinflationary policies were adopted either at the same time or at a later date to relieve the pressure of total demand.

The Report suggests that the way in which the non-dollar world could strengthen its payments position would be by countries, now maintaining discriminatory import restrictions, expanding their dollar earnings—a view presumably based on the Report's contention that even the most thorough-going revision of U.S. commercial policy would leave some part of Europe's dollar requirements to be financed by dollar earnings from other countries.

While the development programmes now being undertaken in the under-developed countries, will bring new demands and new sales outlets for European products which in time may make a perceptible difference in the overall position of the world's payments situation, it follows from the Report that the real problem to be tackled, if a solution to the world's dollar problem is to be found, rests with creating favourable conditions for the expansion of multilateral trade based on convertibility.

However, this raises a host of problems which cannot be dealt with here and which in any event must await the Report of the Randall commission to President Eisenhower in the spring of next year, which in turn will tend to defer any effective action which the Commonwealth countries may wish to take from decisions resulting from the next Commonwealth Economic Conference which will be held in Australia at the beginning of next year.

Stability in the International Metal Markets

There is probably no question which commands greater interest in the mineral industry to-day than the question of selling prices, and Mr. J. A. Dunn, in an article appearing in the Quarterly Review of the *Australian Mineral Industry* which we reprint in another column, has produced an interesting and able study of the attempts made by governments and combines to maintain remunerative prices in regard to various metals, beginning from 1922 when the Bandoeng agreement and pool was engineered.

The main crux of the question of artificially controlling prices arises from the inevitable conflict of interests between producers and consumers. This Mr. Dunn suggests when he says that an agreement between countries becomes more difficult when consumer countries take a part in these discussions. In periods of open market trading it is, he says, ultimately the consumer who sets the price and he

adduces the well-known contention that if world resources are to be utilized to the utmost, the producer must exert a stronger influence than he has exercised in past periods of open marketing. As against this point of view it will probably be argued by some students of the question that serious restriction of output does not necessarily mean conservation of wasting world reserves and who recall that the low output quotas enforced in the tin industry in the 'thirties resulted in the closing of many mines and, in the case of Malaya at any rate, an embargo on prospecting the full results of which have yet to be experienced. Moreover the maintenance of prices attractive to producers has led in the past to flotations of new tin companies which still contribute to what some observers consider excessive production, due to earlier over-capitalization of the industry; not to mention the lessened need for drastic economies in working and the increase of unemployment with its accompanying social dislocations, and in these days of increasing combination among workers, the generation of labour disputes liable to grow into major political issues.

Moreover, price control, designed to raise prices of raw materials, is to-day more than in the past tending to limit consumption by driving consumers to investigate substitutes, which in these days of rapid technological advance are far more attractive than previously. This is an aspect which the author has not embarked upon in his examination of the pros and cons, but it appears to have made most advance in the tin industry where, besides the inevitable fear of restriction of supplies in wartime, there has supervened widespread resentment, especially among U.S. consumers, resulting from the conviction that they were being exploited by cartels or governments bent on raising prices. The "new" metals and their alloys present a steadily increasing challenge to the old order of things which, if incommensurable, may become a formidable factor in industrial economy.

With one conclusion of the writer there will certainly be no disagreement and that is the need for increasing the statistical study of all branches of the mineral industry, economic, technical and social, and for their presentation in an accessible form at the earliest possible moment.

Schuman Plan—The Next Step

Under the firm and skilled guidance of M. Monnet who has not shrunk from plain speaking in dealing with the recalcitrants, the European Coal and Steel Community appears to have successfully emerged from its earlier teething troubles. In the 13 months which have elapsed since the first formal inauguration of the Schuman plan and the establishment of a common market in coal and steel in the six member States with a combined population of 160,000,000 people, the trade cycle has almost swung full circle. A year ago the world was in the throes of a steel famine; to-day the expansion of production capacity has attained such dimensions as to create an atmosphere of foreboding lest there be a surplus of supplies in the not distant future. In these circumstances British steel interests cannot assume an attitude of complete indifference to the methods adopted by the High Authority to achieve its primary purpose expressed in Act I as "the rational distribution of production at the highest level . . . while safeguarding continuity of employment and avoiding fundamental and persistent disturbances in the economics of member States."

To remain frigidly aloof has never been the policy of British steel. Since the early days of the Community's inception, this country has maintained a strong delegation in Luxembourg under the leadership of Sir Cecil Weir, and in the current issue of the British Iron and Steel Federation's monthly *Bulletin* it is disclosed that a joint committee representing both parties has been studying the conditions necessary to the establishment of "the intimate and lasting conditions between this country and the Community which is the declared objective of the U.K. Government." Its earlier and more insistent pre-occupations disposed of, the High Authority has now intimated that proposals are being formulated for such an association. The objective as defined by M. Monnet is "not a commercial agreement or a division of markets, but common action, common responsibilties rights and obligations shared on a basis of equality." Within those limits there is clearly scope for fruitful negotiation and it is understood that those negotiations will almost certainly begin before the end of the year.

The Leipzig Fair

(From an Occasional Correspondent)

Leipzig, September 6.

Although British business contacts with the Eastern *bloc* countries are still relatively restricted, it is quite clear from this year's Leipzig Fair that many of the smaller Western European countries are eager to extend their trade relations with this area.

Large groups of business men from West Germany, Holland, Belgium, Italy, Scandinavia and France were present. Most of these countries apply the restrictions on trade with the Eastern *bloc* far less thoroughly than the British Board of Trade, and may in future be even more easy-going as a result of the business done during the Fair.

A great variety of products were displayed at the Fair, which was by no means a mere propaganda effort. Mining products were not the most spectacular, but nevertheless were of some significance.

The Russians, for example, are prepared to accept firm offers from Western countries for such strategic metals as chrome and manganese, with a delivery time of about two months. They can also sell iron ore and anthracite for the same delivery date, according to their trade representatives. They added that they were prepared to deal in what they described as "large quantities" of these materials. Other Soviet mineral products of which smaller quantities are available are nickel, zinc, copper, cadmium and aluminium.

The Chinese are well represented here, and among the foreign exhibitors their pavilion comes second only to the Soviet. Significantly, when talking to the Chinese trade representatives, I found that they referred to Russia as "our sister country," indicating the close relations.

They were offering wolfram concentrates, tin, antimony, mercury, asbestos, mica, molybdenum concentrates and coal. The latter would be of little use to Europe, and would more likely be sold to Japan. Delivery dates were described as "reasonable" but the Chinese representatives politely but firmly refused to commit themselves except to business men with firm offers available.

The Poles hoped to sell coal at the Fair. They now produce 84,500,000 tons a year and intend to raise the figure to an annual production of 100,000,000 tons by 1955. No mention was made of price, however, but Polish coal prices are certain to be competitive with those of Western Europe.

During the Fair the East Germans sold potash to the value of £600,000 to Britain. The Eastern Zone Government is also prepared to sell brown coal briquettes, corundum and rock and common salt.

Of the other countries represented, only Bulgaria was of interest as far as minerals are concerned. Intensive geological research is apparently going on and great hopes are expressed that big mineral resources will be discovered. The Bulgarian stand exhibited samples of chrome, manganese and asbestos, concerning which the trade representatives stated that they were prepared to discuss export possibilities with interested buyers.

The Eastern *bloc* representatives all claimed that they were interested in purchasing metals. These included pig iron, tin plate, steel and non-ferrous metals, particularly tin.

Under present restrictions it is unlikely that they will be able to get what they need. On the other hand in the coming months there is likely to be considerable pressure from business circles in continental Western European countries for a relaxation of trade restriction, regardless of United Nations decisions and United States embargoes. This pressure, in the opinion of the writer, may well lead to a trade in metals with the Eastern *bloc*.

Western United States

(From Our Own Correspondent)

Portland, Oregon, August 25.

New Jersey Zinc Co. is planning on entering the copper field in Arizona. When United Verde Extension (not to be confused with United Verde Copper Co.) was liquidated in 1947 it turned over its realty holdings to Verde Exploration Ltd. and this company has made a contract with New Jersey Zinc by which the latter will carry on exploration, principally by drilling, and finance certain operations by Verde Exploration. The programme is of interest when we recall that "U.V.X." was developed wholly on geological evidence at an expense in excess of $500,000 with subsequent production of $132,000,000 and dividends of more than $50,000,000. Copper Creek Consolidated Mining Co. in Pinal County, Arizona, has entered into a government contract to furnish 5,500,000 lb. of copper at a price of 29 c. per lb. The copper is to be produced by leaching in place by sulphuric acid after the ore has been caved. The mine is estimated to have 450,000 tons of ore averaging 2.25 per cent copper, amenable to such treatment. This is only the second attempt in this country at leaching copper ore in place, the other having been at the Ohio Copper Co.'s mine in Bingham, Utah.

LITTLE ENCOURAGEMENT FOR LEAD-ZINC PRODUCERS

Perhaps one should not harp on an unpleasant subject but a review of the lead and zinc situation during the first half of 1953 is hardly encouraging. Preliminary figures indicate a decrease in production from the corresponding 1952 period from 119,000 to 101,000 tons for lead and from 205,000 to 161,000 tons for zinc, declines of approximately 15 and 20 per cent respectively. This would indicate that the situation in these metals is one for real concern and not simply a matter of political propaganda at a time when tariff revision is coming up for careful scrutiny.

Notwithstanding the market situation development and exploration continue. In Idaho's Coeur d'Alene district Polaris has started an exploration drift on the 3,000 level of its Silver Summit ground which will be carried two miles easterly to A.S. and R.'s Vulcan. Crosscutting and diamond drilling are included in the programme as well as a crosscut and 330 ft. raise to connect with Coeur d'Alene Mines Co.'s shaft on the latter's 2,800 level. Bear Creek Mining Co. (Kennecott) has started a diamond drilling programme in the Bonanza lead and zinc district in Saguache County, Colorado, and Newmont has made a working agreement with Tombstone Development Co. at Tombstone, Arizona. In its heyday Tombstone was noted for its rich ore and its bad men. After the mines were drowned out the principal properties were consolidated as the Tombstone Development Co. and attempts were made to unwater the mines, known to contain considerable tonnages of ore of good grade, but these were unsuccessful.

It is the hope now that Newmont with ample finances and technical skill will succeed in putting the old camp on the map again, not as a producer of high grade silver but of the more prosaic lead and zinc. Eureka Corporation (Ventures Ltd.) is continuing its battle with water at its Fad shaft in the Eureka district in Nevada where sinking has been discontinued since 1948. Meanwhile further exploration is being carried on by core drilling. First exploration was by conventional type diamond drills from the 900 level of the mine and results were encouraging but core recovery was unsatisfactory on account of the friable nature of the ore. In order to check previously formed conclusions further drilling was decided on but with a radical change in equipment in that work is being started from the surface with typical oil field rotary rigs. Holes 9⅞ in. in diameter are drilled with Reed or Hughes bits until reaching a formation where coring is desirable. Then a 6¼ in. Christenson diamond core bit which takes a 3½ in. core is used. Cores are taken 3 to 4 ft. at a time using a full floating core barrel and after coring ahead for about 30 ft. the hole is reamed to 8½ in. before coring proceeds farther. A Franks drill with capacity of 75 tons tool string and depth of 5,000 ft. is used on the rotary rig.

Recovery of the larger core has been much better than with the smaller diamond drill and it is a matter of satisfaction to the management that core assays are agreeing very closely with the results of sludge assays from the diamond drilling. Eureka Corporation has been working on this project since 1937, frequently against obstacles that have appeared unsurmountable. The stake in the venture can be understood when we realize that production from the mined side of the Ruby Hill fault has been estimated from various sources at somewhere from $50,000,000 to $90,000,000 from 1,500,000 tons of ore and that the recent exploration indicates values of $75 per ton in the area to be developed with reasonable expectation of comparable tonnage.

IRON AND ALLOYS

Iron ore production from Nevada and the California Desert deposits has fallen off notably since the principal market, Japan, has found more convenient sources of supply. While these deposits are too small even collectively to sustain a major steel operation, development and small scale operations continue as many are high grade and can be adapted to special usages. As an example American Ore Co. in Pershing County, Nevada, is shipping under contract to Youngstown Sheet and Tube Co. in Indiana as its ore is suitable to conversion to sponge iron for use in place of scrap in the furnaces.

In ferro-alloy metals Climax Molybdenum announces that it has brought daily mine production to 23,000 tons and expects to attain 28,000 tons by the end of the year. At its Utah Copper division Kennecott is installing new flotation equipment for the purpose of increasing output of molybdenum which it recovers as a byproduct of its copper ores. In manganese Pioche Manganese Co. (Combined Metals) has commenced operation of its ferro-manganese plant at Henderson, Nevada. Combined Metals, aptly named, operates a 2,500 ton mill where it treats the complex lead-zinc-manganese ore from its Pioche mine. Manganese concentrates are nodulized at the plant and shipped to Henderson for manufacture of ferro-manganese in two 7,500 kVa. Lectromelt furnaces.

Pacific Northwest Alloys, subsidiary of Chromium Mining and Smelting Corporation, a Canadian firm, has leased the government owned magnesium plant at Mead, Washington, and is converting it to the manufacture of ferrochrome. Ore will be obtained from foreign sources and from the large low grade deposit in Montana presently under development. The conversion programme involves an expenditure of $1,500,000 and is expected to give the plant a monthly capacity of 3,500 tons of ferrochrome. The House has voted a two year extension of the tungsten purchase programme which would carry it to July 1, 1958.

Stability in International Metal Markets

By J. A. DUNN

The following article is an advance copy of that to be published in Vol. 6 No. 1 of *The Australian Mineral Industry, Quarterly Review* published by the Bureau of Mineral Resources, Geology and Geophysics. The author, who is Chief Mineral Economist in the Australian Bureau of Mineral Resources, has chosen a timely moment to discuss the all-important question of stability in international metal markets, comment on which appears in this issue under Notes and Comments.

All countries have passed in recent years through a period of commodity controls unprecedented in history. Commencing shortly after the war started in 1939, controls of distribution, use, and price were extended eventually to most basic commodities and were continued for shortage, currency, and other reasons after the war had ceased. They gave rise to many problems, irksome to industry and Governments. There were few, either in Government or in industry, who professed to a desire to the continuation of marketing controls longer than was essential.

The mineral industry throughout the world had to adjust itself to new trading conditions under the different forms of controls. Now that these controls have largely disappeared, the mineral industry, on re-experiencing open market trading, is finding the conditions of the open market not quite the same as they were pre-war, and in some sections particularly of the base metals, is meeting with problems which, although of a different nature, are as irksome as those which were suffered under controls. Indeed, some producers have gone so far as to suggest a return to locally controlled prices to get them out of their difficulties. It may be of interest to set down some thoughts on these matters.

Before the war, the only controls of importance in the mineral world were broad limitations of output exercised by groups of producers with the planned object of avoiding overproduction. Two such important controls of output were exercised by producers of tin and of copper. Lead producers attempted a similar restriction, but less effectively.

MINIMIZING EFFECT OF OVERPRODUCTION

The first effort to minimize the effect of overproduction of tin was made in 1922 when, in order to reduce available stocks of tin, a group of Eastern producers formed a supplementary stock of 17,600 tons, under what was known as the Bandoeng Agreement; the stock was released during 1923 and 1924 as the price of tin rose. Again, in July, 1929, the Tin Producers' Association was formed to reduce the margin of production over consumption, the members being producers in Malaya, Netherlands East Indies, and Bolivia, but this voluntary scheme amongst producers was ineffective. This led to the formation of the International Tin Committee and to a scheme for the compulsory restriction of output which came into force on March 1, 1931, the members being the British, Dutch and Bolivian Governments. The quota system of restricted output was worked in conjunction with an International Tin Pool. From 1934 there were successive new Agreements, and other countries joined in to control output covering 90 per cent of the world's production. The Agreements gave useful results, capacity was kept in reserve so that when war started it was possible to increase output at once, production in 1941 being a record peak before Japan entered the war. Loss of the Eastern production caused a shortage from 1942 until about 1949 when Eastern mines were rehabilitated. After the war, instead of the International Tin Committee renewing the Agreement, the International Tin Study Group was formed consisting of both tin producer and consumer countries, the object being to study the tin position. Since 1949 production has been far in excess of consumption but the excess has been absorbed in stockpiles, mainly in the U.S.A. Discussions since 1949 on a producer-consumer international agreement have been unsuccessful so far.

The copper mining industry differs from tin mining in that a very large proportion of the world production is by a relatively few powerful organizations. The world's annual absorption of primary copper between the two wars ranged from less than 1,000,000 tons to over 2,000,000 tons, and demand was always far below the production capacity of mines and smelters. To restrict output equitably a Copper Cartel, consisting of the large producers of copper outside of the United States (mainly subsidiaries of Anaconda Copper Mining Co. and Kennecott Copper Corporation in South America and Mexico, companies in Northern Rhodesia and Belgian Congo, Rio Tinto in Spain and Bor in Yugoslavia), and which controlled about 50 per cent of the world's production outside of the United States, fixed production amongst its members periodically according to market demand. Of course U.S. anti-trust laws prevented U.S. producers combining to control domestic production, but combinations of producers fixed export prices as a safeguard against powerful buyers abroad. After the war started and until 1953, copper was not in ample supply. Prices were subject to Government control in most countries. Shortly after the start of the Korean War demand (as distinct from consumption) was so great that copper was one of the commodities which the International Materials Conference, formed early in 1951, decided should be subject to allocation.

The controlled output of tin and copper before the war did exert some beneficial influence on industry, ensuring in general reasonably profitable prices, providing some stimulus to further exploration. Similar efforts by important lead producers had little influence on price, probably because those who accepted restrictions represented too small a proportion of the total production.

MAGNITUDE OF AUSTRALIA'S PROBLEMS

With the War came the introduction of controls having as their first object the full supply of materials for war purposes, and secondly the prevention of price increases during a period of shortage. Since the war the control of price has continued, in some countries as an accompaniment of bulk Government buying, as in the U.K., or in an attempt to minimize inflation, as in Australia. In addition, currency controls have introduced further problems. These controls must necessarily be accompanied by export and import controls, all of which tend to restrict the flow of legitimate business and in some cases bring useful channels of trade to a complete standstill.

In Australia our problems have been greater than in most countries. In peacetime, price controls rest with the State Governments, yet the export and import restrictions which must accompany price control of many raw materials rest with the Commonwealth Government. In some cases price control can be effective only if accompanied by some means of allocation ; there are no centralized powers in this country for this purpose in peacetime, but industry itself has been in the position to co-operate in this matter.

To the producers, a domestic control which maintains price at a lower level than oversea prices has a serious disadvantage. Sooner or later the oversea price must fall. Once the oversea price drops below the local controlled price, the latter cannot be held for long, and must follow the oversea price down. Thus the producer has not enjoyed the high prices of the rest of the world to help him to meet the acute fall in price which follows. Relative to oversea producers, he is forced into a weaker marketing position. This is a position which a country, dependent on the development of its raw material resources, can ill afford. Throughout controls it has become increasingly apparent that no country can isolate an industry economically from that of other countries without creating new problems which press heavily on other industries.

THE LESSON OF THE I.M.C.

By early 1950, the supply-demand position in most countries had improved to the extent that controls were being relaxed, except for currency purposes. The start of the Korean War introduced fresh problems of supply, demand for some materials increased at once, and, by the end of 1950, certain commodities were in short supply. To what extent that shortage was caused by precautionary accumulation of stocks, or by increased real consumption is difficult to say. The International Materials Conference was formed early in 1951 with the object of allocating amongst countries those commodities judged to be in short supply. But before any allocations could be made the statistical position had to be cleared—existing statistics were quite inadequate—and some nine months elapsed before allocations of some commodities could be made. Soon afterwards the emergency began to pass. Nevertheless, to Australia as to other countries, for the brief period of the shortage, the I.M.C. did ensure that we had a reasonable supply of such commodities as copper, nickel, cobalt, molybdenum and sulphur. The statistical position as judged by the I.M.C. was necessarily based on the information supplied by industry itself. On the consumption side, the data made available in different countries suggested room for considerable expansion of production of a number of commodities. Producers responded to the consumers' anticipations as transmitted through I.M.C., only to find as the emergency passed that those anticipations were not to be realized. Indeed, it has become evident since allocations ceased, that heavy stocks were held by consumers.

The underlying lesson of the I.M.C. is that industry is not statistically prepared to meet an emergency. Hurriedly prepared statistics may exaggerate rather than clarify the position when an emergency arises. The maintenance of detailed statistics on an international level over the years is essential and an important item of those statistics is stocks. There is an aversion to the supply of statistical data by industry, particularly in Australia, nevertheless when the necessity arises it is noticeable that industry itself wonders why we are not better prepared.

The varying successes of controls are, of course, related to the differences in outlook between producers and consumers. It is natural that the producers should wish to maintain price at a reasonable level, and they were reasonably successful in this objective in the case of tin and copper before the war. Whether any altruistic motive in addition to price enters their considerations, such as the conservation of resources, may be debated by consumers, but certainly the producers' efforts to maintain price by restrictions on output in times of excess production capacity also have the laudable effect of conserving mineral resources.

Restrictions on output imposed by producers have often been regarded by consumers as evidence that the producers are artificially creating a shortage to enforce an unjustifiable high price. Looking back over the pre-war years at no time could it be fairly said that the producers by their actions had forced price to an unjustifiable level. It is arguable whether producer or consumer has been mainly responsible for the fantastic prices reached by lead, zinc and copper during the recent period of control under shortage, but the remarkably high price reached by tin on the open market in 1950-51 was certainly due to consumer bidding. Judged from the viewpoint of the conservation of the world's mineral resources, such collective action as has been taken at any time by producers has invariably been for the welfare of the mining industry.

It is inherent in much of the mineral industry that capacity for production tends to be in excess of demand. The only prolonged interval of shortage for the base metals in history has been the period since the early days of the war, and which followed from war-wastage. That period is behind us, and we are now returning to the norm of excess production capacity. In its approach to marketing will the base metal industry remain content to resume pre-war methods of marketing?

There are many in the industry to-day who have had no experience of pre-war marketing. Furthermore, during the long intervals of controls there have been great changes in the direction of flow of commodities, in the relative amounts of the different grades and brands marketed, and in the premiums payable for them. As an example we may quote the London Metal Exchange dealings in zinc which, although they represent only a very small percentage of total zinc trade, do set the price for a large amount of zinc sold directly to consumers. As before the war the Exchange deals in "good ordinary brand" zinc, which is readily available through the Exchange, whereas a large proportion of zinc is of grades superior to g.o.b., and the premiums for these grades allowed above the g.o.b. price are quite out of line with their availability and the demand for them. The answer to this problem is partly in the hands of the Exchange by changing the form of contract. Nevertheless, the full answer lies elsewhere. During periods of open market trading it is ultimately the consumer who sets the price on the Metal Exchange. It has been said by some producers that Exchange dealings are of a gambling nature and therefore not a true indication of value. Exchange dealings do provide a legitimate means of hedging in forward transactions. They resemble a gamble only in so far as they represent the bidders' estimate of the supply position of the metal available through the Exchange. The paradox is that the Exchange price represents the consumers' estimate of the relative availability of that small marginal amount of metal which is dealt in on the Exchange, say 10 per cent of the world total, yet these prices set the level for the bulk of the world metal which passes directly from producer to consumer.

A STRONGER INFLUENCE FOR THE PRODUCER

Recent proposals by producers in different countries have as their object the local stabilization of prices, such as by direct price control with or without the use of price equalization pools, or by various forms of subsidies or bounties, or by sliding scale and other forms of protective tariffs which are in effect only variants of direct control and not uncommonly carry all the implications of direct controls, creating equal or even greater problems elsewhere. By and large they can be entertained only when some local vital or strategic industry might otherwise be obliterated.

If world resources are to be utilized to the utmost, the producer must be in the position to exert a stronger influence on price than he has in past periods of open marketing. It is difficult to see how this can be done, but the action taken by producers on tin and copper before the war may point the way. Further, the trend of demand

is, in general, upwards, but there is a limit to our metal resources and for most of the base metals the end of resources, as we know them to-day, is not so many generations ahead. It is clear that, in the future, periods of shortage will recur with increasing frequency. From whatever standpoint the problem is studied, there must be some radical change in marketing methods.

Opening the recent Working Party of the International Tin Study Group in Brussels, M. Dequae, Belgian Minister of Colonies, said, "The producers and consumers of tin each in turn at particular periods, and in the light of their particular problems, have sought to resolve these difficulties on the international plane. What you want to do, what you must do, and what you will do with a maximum of goodwill is to fashion a true world community of tin, a community which will serve the interests of all."

M. Dequae's thought comprises the aims that many would like to see attained. These aims may be stated broadly :

(a) To stabilize price within reasonable limits which will permit the optimum use of available resources.
(b) To equate production to demand in an orderly manner which will permit expansion and contraction of output without loss of resources, and permit orderly development of new resources.

Can industry itself reach that goal of stability and conservation or must it be through international or local Government action ?

Perhaps the answer can be found in the past. Conclusions from past experience may be easily over-simplified, nevertheless to the producer it may be of interest to summarize the lessons of the last quarter century.

The history of tin agreements illustrates that :

(a) the failure of the voluntary control by the Tin Producers' Association in 1929-30 was because much of tin production is by innumerable small producers who will not voluntarily enter a restriction scheme ;
(b) restricted output became workable when the Agreement was between Governments of producing countries ;
(c) an Agreement between countries becomes more difficult when consumer countries take a part in the discussions.

The pre-war history of copper suggests that :

(d) where a large proportion of production is controlled by a relatively few organizations, production and price in times of over-production can be controlled by the producers themselves, without the interference of Governments.

The International Materials Conference has illustrated that :

(e) when a period of prospective shortage approaches, consumers tend to over-state requirements and accumulate large stocks, thus leading to an acute artificial shortage which might otherwise have been avoided ;
(f) the available detailed statistics of world production, consumption and stocks are not in general sufficiently reliable to provide a basis for international control at short notice.

Domestic controls have demonstrated that :

(g) where local price control is out of line with oversea prices, other supplementary controls are required to support it, leading inevitably to restrictions on legitimate trade.

It is not intended here to attempt to point the way. Maybe there are those in industry, producers and consumers, who see the way they should go for the benefit of both. But, taking first things first, it is clear that some international organization should be established which will place the detailed statistical and other informational data of the metals on to an authoritative basis. If the statistical and informational service for all metals were on a standard equal to that provided by the International Tin Study Group for tin, then we would be part way along the road to understanding the problems ahead.

Modern Welding Practice and the Mining Industry

By C. W. BRETT, M.Inst.W.

The mining and metallurgical industries spend annually a considerable amount of money on the replacement of worn out machine parts and, in some instances, suffer a costly time-lag when the replacements cannot be obtained readily. One answer to these difficulties is the use of modern welding techniques which enable welded repair work to have a permanency scarcely less effective than that of an original surface. In the following article the author, who is Managing Director, Barimar Ltd., broadly surveys the scope available for modern welding techniques in the mining industry and describes some of the methods used in current practice.

Because welding is so often associated with interim measures taken to patch up faulty machine parts, the general impression has been that its prime function is merely to provide a convenient stop-gap until a new part can be secured.

This is as unfortunate as it is misleading, for as a result of intensive research work carried out in the past decade rapid advances in welding technique have been achieved, with the result that welding, undertaken by specialists, is not only trustworthy and relatively inexpensive, but is permanent. In fact, repairs once regarded as impractical are now commonplace, an advance attributable in large part to the wide range of welding rods now available in stainless steel, monel metal, etc., which are valuable in preventing or, at the very least, retarding substantially the effects of corrosion met with in the normal course of service.

To be on familiar terms with the merits of modern welding technique it is necessary to understand the vast difference between welding as applied to new production and the methods used to deal with repairs. Broadly speaking, welding as applied to new production has been reduced to a matter of systematic routine, while the latter is best seen as a series of special problems demanding a high degree of technical skill and elaborate equipment.

The most valuable contribution modern welding technique can offer mining and metallurgical industries is perhaps in the field of replacements. The replacement of worn out parts may not only be costly, but in many instances cannot be obtained at short notice. Emergencies, therefore, arise making it imperative to find other ways and means by which the machine part to be replaced can be repaired and put back into service. In this connection

there is no fear of a contradiction of the statement that modern welding technique has progressed to the point where a component, which hitherto would be considered of little further use, can now be made qualitatively equal, with little or no effect on its operational capacity or length of life.

One of the most striking examples of the successful application of modern welding technique is in dealing with broken, fractured, or otherwise fissured crankshafts. Often enough crankshafts are one of the most difficult component parts to replace and moreover, when breakage does occur, usually through a web, there is nothing half-hearted about it and a major distortion often occurs.

IMPORTANCE OF ALIGNMENT

As steel is generally the metal involved the electric process is usually preferred. The crux of the ensuing welding operation concerns the alignment. For while great strength is absolutely necessary, it is useless if the alignment is not accurate in all respects to within 0.001 of an inch.

The job is one that calls for the utmost skill on the part of the operator who works in conjunction with a metallurgical chemist ; for the type of welding rod, speed of working and a score of other interconnecting points must be settled at the outset. Work of this kind is first carefully prepared and then layer after layer of metal is put down with surprising precision, each one normalizing the previous run. This is so important that the final layer stands " proud " and is machined away entirely, thus leaving only normalized weld metal.

During the whole of this operation the area of fusion is enveloped by hydrogen or some other inert gas to avoid atmospheric contact, as oxygen creates pit marks and lowers the quality of the weld because of its affinity for the molten metal. A mirror surface entirely free from blemish is finally imparted to the crankpins and journals. If there is severe wear or scoring upon these bearing surfaces they can be built up so that when they are re-ground they are not undersize. In fact many engineers specify oversize diameters so that after a further long period of duty necessitating further grinding, the pins and journals can be restored to their original dimensions.

A reunited crankshaft is subjected to the most careful inspection during welding and it is of interest to record that of over one thousand fractured shafts repaired in this way and kept under observation, only one failed a second time and this was at a point some distance from the weld and due entirely to a flaw in the forging.

Particularly good work has also been accomplished with exceptionally hard, yet tough steel, some grades of which are so resistant to abrasion that they are fully equal to a case hardened surface. In fact, the eminently satisfactory results achieved with this type of steel have enabled it to be used for tipping tools required for planing and turning in precisely the same manner as ordinary high speed steels. A more recent extension of this process has been the tipping of drill bits used on the hardest rock formations.

RESEARCH ON HEAT CONTROL

Both gas and electric welding have developed on parallel lines as each application has its own particular sphere of usefulness. Electric welding is applied to steel—though not exclusively so—while gas welding is better able to deal with non-ferrous metals and exacting classes of repair work involving thin sections. This is because gas welding lends itself to a wide range of temperature control, it being practical to dilute the oxy-acetylene flame, a purpose for which coal gas is particularly convenient.

Progress in modern welding technique also owes a great deal to research work that has been undertaken on the matter of heat control. One important finding which arose out of a close study of this problem has been to eliminate the pre-heating of cast and malleable iron parts. At one time materials of this class were always brought to a fairly high temperature prior to welding to reduce internal stresses in the metal and avoid the risk of distortion. This preliminary step is now no longer necessary although perfect alignment is achieved and the quality of the weld metal is improved.

This ability to control heat flow is equally important with non-ferrous materials and is partly responsible for the development of a process whereby different metals may be welded together despite each metal possessing widely contrasting co-efficients of expansion. This process has, in fact, been so successful that it now is becoming common practice to weld rather than to rivet aluminium to steel.

Recently a series of tip wagons were reconditioned by welding methods. The needs were extensive, involving frames, mountings, wheels and, in some instances, even the axles. A remarkable degree of resistance to a repetition of these troubles was achieved and it was estimated that the financial saving amounted to as much as 90 per cent.

Gear wheels are components that are frequently received for reconditioning. Sometimes working conditions make it impossible to give complete protection to gears and consequently teeth are broken or a wheel may be smashed into several pieces. Even so it is seldom that repair is not worthwhile both from the standpoint of cost and of time. After building up new teeth upon the foundation of those broken away the wheel is accurately re-cut and made in every way capable of service equal to a new part.

In many instances it is necessary to do a certain amount of machining after the welding has been completed. The variety of work handled makes it essential to undertake so many different operations that the range of machine tools must be comprehensive. This is a further reason why so much of this class of work is undertaken by specialists.

APPLICATION BY SPECIALISTS

Some of the items handled are massive castings weighing several tons whilst at the other end of the scale are tiny components calling for reconditioning which can permit of virtually no tolerance whatever, so close are the limits to which alignment and machining must comply.

Boilers and other bulky items weighing more than the usual limit of 10/12 tons are generally handled on site and to this end specially trained operators using portable self-contained welding equipment are always available to render service at short notice wherever an emergency may call them. In one instance special conditions made it imperative to make rapid modifications to some coal cutting equipment. This was achieved quickly and with complete dependability.

Pumping plant, too, is frequently reconditioned by similar methods. Centrifugal pump rotors, for example, can be built up afresh using metal which is resistant to corrosion and wear. In such cases special care is taken to ensure a perfect balance.

Apart from the repair of broken parts and the reconditioning of items worn and corroded, a good deal of work is being done with regard to modifying existing plant. Sometimes for the purpose of modernizing it, but in other cases to meet the needs of new processes. Such alterations are often done with surprising speed and there are many examples which spring to mind in which it would be difficult to visualize any satisfactory alternative apart from the procuring of entirely new equipment.

While maintenance facilities afforded by modern scientific welding technique can be of benefit to almost every branch of engineering, there would appear to be room for its wider application in the mining industry, particularly in these days when operating costs have to be scrutinized.

Rubber Hose in Mining

By A. G. THOMSON

Internal and external abrasive forces play a major part in shortening the life of underground hose. In the following article the author discusses these destructive elements, and describes the research being undertaken to counter their effects.

The principal purpose for which rubber hose is used underground is for rock drill hoses, which have to stand up to particularly rough usage. Durability and toughness are, therefore, of the utmost importance, and for this reason only the very finest materials are employed in manufacture. Cotton yarn of the best quality obtainable and rubber compounds perfected by many years of constant research and experiments are used for inner tubes and outside covers.

The properties of rubber compounds which make them so valuable for use in the production of rock drill hose are resistance to abrasion, cutting, tearing and impact. The abrasion resistance of suitably compounded rubber is unique. This property is dependent on the ability of the material to deform under strain and to recover its original form almost at once. The power to deform, commonly known as the "cushioning effect," must be well understood in order to get the best results from the use of rubber in abrasive service. Types of abrasion vary, and the type that predominates in any given application must be carefully considered. No satisfactory standard tests have yet been developed for measuring abrasion resistance, the only conclusive test of any rubber compound being the results obtained in actual service under the particular conditions to be encountered.

THE RESISTANCES DEMANDED

Resistance to tearing and cutting is closely related to abrasion resistance, and the type of compound suitable for the one is, generally speaking, also suitable for the other. The thickness of the material is important, because if too thin a section is used there is not sufficient body to absorb the deformation and prevent cutting action.

The mining industry also requires various kinds of hoses for special duty, and in many cases the rubber has to be compounded to resist acids, oils, sandblast and shot drill abrasion, oxy-acetylene work, etc. Nowadays rubber can be compounded to resist practically any chemicals. Compounds can be produced, for example, which will resist actual immersion for long periods in any of the inorganic acids except those of strongly oxidizing character.

The resistance of rubber compounds to the protracted effects of contact with oils and solvents has been greatly increased by scientific compounding, and research efforts are continually reaching new levels of accomplishment in this field. A compound known as B.T.R. celinol "B" has been highly successful as an air hose tube, showing marked resistance to swelling and deterioration in the presence of compressor oil up to 200 deg. F. It has a tensile strength of 850 lb./sq. in. with 300 per cent elongation.[1]

In cases where no rubber compound has been successfully adapted, new uses are being found for synthetic elastic materials, such as Koroseal, Neoprene, Buna, etc. Generally speaking, elastic synthetics are not substitutes for rubber but are useful for oil and petrol resistance, resistance to sunlight, ozone and extremely severe flexing.

In the production of pneumatic hoses rubber compounds and/or synthetic elastic materials may be combined in the following ways:

(a) A tough rubber cover highly resistant to abrasion, gouging, etc., combined with a carcass of braided fabric impregnated with rubber to give greater adhesion and strength, and an inner tube of oil-resisting rubber.

(b) A tough rubber cover with fabric carcass and an inner tube of synthetic elastic with oil-resisting properties.

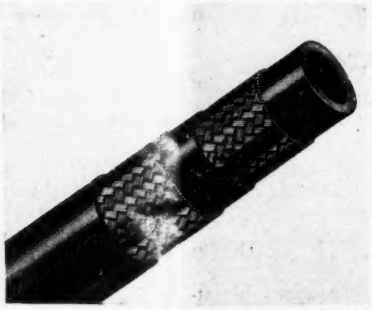
Water hose, like pneumatic hose, is constructed to withstand blows from sharp heavy rocks, abrasion, heat and acidity. Essentially, it consists of an inner rubber sheath encased in rubber-impregnated yarn, the whole being covered by a tough rubber outer cover or sheath.

RESEARCH ON RUBBER

Research on rubber is carried out by the British Rubber Producers Research Association, whose Fundamental Research Department is concerned with the basic facts regarding the chemistry and physics of natural rubber, while its Applied Research Department seeks to discover and develop modified forms of natural rubber capable of entering new industrial fields. The Research Association of British Rubber Manufacturers carries out fundamental investigations on the chemistry and physics of natural and synthetic rubbers and on the basic processes of rubber manufacture. It also studies the effects of compounding ingredients, antioxidants, accelerators, etc., and the properties of vulcanized products under varying conditions.

An important investigation, now well advanced, concerns the adhesion of rubber to textile fabrics and might lead to interesting developments in the production of mining hose.

Wrapped hose with fabric ply reinforcement



Wrapped hose with braided reinforcement

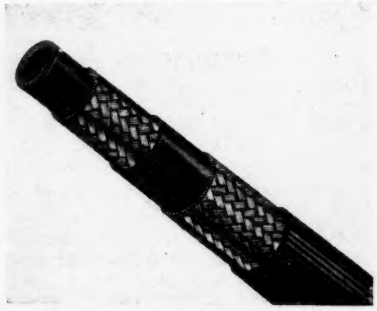


Photo: Courtesy British Tyre & Rubber Co. Ltd.

Long length moulded and cotton braided hose

Formerly cotton was universally employed for the fabric foundation, and the adhesion of the rubber to the fabric presented no difficulties. Modern fibres such as the rayons, nylon and the newer compositions have substantial advantages in respect of strength and other qualities over cotton, but it was found that rubber would not adhere to them so well. This problem is under investigation by the Research Association of British Rubber Manufacturers. It was eventually possible to demonstrate that adhesion depends largely on the loose fibre ends which protrude from ordinary staple fibre cloth. These whiskers become so firmly embedded that the rubber cannot be stripped from the fabric without breaking them. In rayon and similar materials the filaments are generally continuous and there are no loose ends. The development of satisfactory adhesion seems, therefore, to lie in the production of a fabric from short fibres spun in such a manner that whiskers are produced. Special nylon fabrics have now been made for experimental purposes in which the adhesion has proved even better than with cotton.

Goodyear air hose in operation at Settlingstones mine, Northumberland, the only mine in the world where witherite, a barium ore, is solidly mined

Much knowledge which is directly applicable to mining hose is resulting from tests carried out at the Fire Research Station of the Joint Fire Research Organization. Besides considering the use of water in fire-fighting, some attention has been given to the hose through which the water is applied.

During the war fire hose was purchased centrally on a much larger scale than in peacetime, and under the conditions prevailing many new difficulties were presented. The proportion of wasteage became a matter of grave concern, and the Ministry of Home Security called for an examination of certain aspects of the problem by the Fire Division of its Research and Experiments Department. After the war some of the work of this Division was continued by the Joint Fire Research Organization. At an early stage in the investigation a survey was made of discarded hose in a number of typical depots to determine the principal reasons for taking it out of service.[2] Though the investigators were concerned specifically with fire hose, some of the conclusions reached appear to be applicable to the performance of mining hose.

ABRASION FROM MILDEW AND DECAY

It is widely believed that deterioration of fire hose is due chiefly to abrasion. The evidence suggested, however, that by far the most important factor was microbiological activity in the form of so-called mildew. In this connection, however, the investigators were careful to point out that some of their conclusions bear particularly on wartime conditions. The term "mildew" is commonly applied to any form of fungi or bacterial growth giving rise to discoloration of the material on which the growth occurs. Technically two types of attack are distinguished, namely mildew, which is limited to discoloration and musty odour, and decay, in which tendering or loss in tensile strength of the fabric occurs.

A laboratory method of investigating the efficacy of rot-proofing treatments for woven fire hose was developed at the Fire Research Station and qualitatively compared with service conditions. Two of the treatments tested proved effective in inhibiting mildew attack and would be beneficial for hose undergoing lengthy periods of storage under doubtful atmospheric conditions

During the course of the survey it was found that many of the stored lengths of rubber-lined hose contained a small quantity of liquid, commonly up to a quarter of a pint, which on test gave an acid reaction. This acid caused damage by being spilled on to the fabric covers, or on to unlined hose, where it resulted in tendering of the fibres, particularly when heated. An investigation of rubber-acid damage in fire hose suggested that it was due to the activity of sulphur oxidizing bacteria of the *Thiobacierium thiooxidans* group, which may be present in the water left in the hose. Provided the rubber lining contains less than 0.1 per cent of free sulphur, it is unlikely that any acid will be formed. The only safeguard, however, is to ensure that the interior of rubber-lined hose is thoroughly dry before storage.

The effect of repeated wetting and drying on unlined canvas fire hose has also been examined. Tests carried out at the Building Research Station indicate that quality is adversely affected by wetting and drying.

RESISTANCE OF YARN

The resistance to abrasion of a length of hose is a function of the quality of the yarn, particularly of the warp yarn, and of the weave. It is a factor which is very difficult to determine under practical working conditions, because it involves movement on an abrasive surface under pressure and these conditions vary widely in practice. The most convenient way of determining this factor is by means of a laboratory test under conditions which are as near as possible to working conditions, and which can be repeated with reasonable accuracy. A machine for this purpose has been designed at the Fire Research Station, and preliminary tests indicate that it would be capable of distinguishing the difference between hoses which have a high or a low resistance to abrasion. It is considered that the method shows good promise of being suitable for establishing a specification condition for resistance of hose to abrasive wear.

In the same report some practical recommendations are given for storing hose. Cotton fabrics undergo appreciable tendering if exposed to temperatures above 140 deg. F., and care should therefore be taken to prevent hose from coming into contact with radiators or steam pipes. The maximum safe storage temperature for rubber-lined hose is 100 deg. F.

Textile fabrics of all kinds suffer chemical deterioration under the action of light, the chief effects being loss in strength accompanied by discoloration. It is therefore considered that hose should be protected from strong lights, particularly when stored for long periods. This should not be taken to mean that dark, poorly ventilated premises are suitable for hose storage.

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1. *Rubber in Mining*, by A. V. Paull and J. Gallaway.
2. *Some Notes on Fire Hose*, F.P.E. Note No. 26/1950.

The Coal Industry

(From Our Coal Correspondent)

A short synopsis of the recently published Annual Report of H.M. Chief Inspector of Mines for 1951 was given under Notes and Comments in our issue of August 28, and in the concluding paragraph we referred to the problem of coal dust and pneumoconiosis. The Report of the Ministry of National Insurance for 1952, which has also just been published, throws further light on this subject. Of the 775,000 claims made in 1952 for payments in respect of injuries and industrial diseases, 250,000, or nearly a third of the total, were made by miners. During the year there were 19,000 additional claims for disablement benefits, bringing the total number of individual payments up to 76,000, and 40 per cent of the recipients were miners disabled by injuries, pneumoconiosis and other diseases. This number is likely to go up very considerably soon because the National Insurance (Industrial Injuries) Act of 1953, which came into operation on August 26, not only extends to every worker irrespective of his scheduled occupation the right to claim compensation for pneumoconiosis but also entitles him to benefit on an assessment of one per cent disablement instead of five per cent as in the past. A much larger number of workers within the industry will thus be added to the list of recipients as well as many of those who left the mines at the first sign of the onset of pneumoconiosis to take up other occupations.

Another sidelight on this subject has been given by Dr. Arthur J. Thomas, consultant physician to the United Cardiff Hospitals, who stated recently that heart disease is 50 per cent more common among anthracite miners and 30 per cent more common among all coal miners than in the general male population of England and Wales, and he attributed this to the high incidence of pulmonary heart diseased caused by pneumoconiosis.

ANTHRACITE DEVELOPMENTS

Much publicity has been given to the important developments which are now taking place in the anthracite area in South Wales where work has already been started on two new collieries which are to cost between £6,000,000 and £7,500,000 each. These new pits are being opened in the districts where pneumoconiosis is more prevalent than in any part of Great Britain and, although much progress has been made here during recent years in the development of new techniques for suppressing dust, particularly by water infusion, the question which is uppermost in the minds of the prospective workers at these new collieries is whether the dust menace is likely to be aggravated by the proposed new mechanized methods of mining. Little or nothing has been said about this problem but the National Coal Board would do well to reassure the miners in these districts on this point in order to gain their full co-operation in these great new projects.

MINING BY CONTINENTAL METHODS

All the workable seams in the middle and lower series are to be exploited at both collieries by the horizon method. Test borings on the Cynheidre site in the Gwendraeth Valley have shown that the seams are undulating and contorted to a considerable extent and that the geological conditions bear a greater resemblance to those of South Limberg in Holland than to the rest of the South Wales coalfield. For this reason the National Coal Board have appointed Mr. Piet Velzeboer, formerly chief mechanization officer of the Dutch State Mines, to take charge of the planning of this colliery. Since the contract for sinking the shafts has also been given to a German firm the colliery is presumably to be laid out on the lines of those in the Rhur and in Holland, where most of the coal is got by pneumatic picks because of the difficulty of using standard types of coal cutters and cutter-loaders on account of the undulating character of the seams.

There are at present 36 collieries in the anthracite area in South Wales with a total annual output of about 3,000,000 tons, most of which is being produced at a considerable loss mainly because of obsolescent equipment and the fact that most of the mines consist of drifts from the outcrops which have gone past their economic limits of development. The average output per manshift is only about 0.75 ton but it is expected that the new collieries will have an output of 1.5 tons per manshift.

A TROLLEY-WIRE LOCOMOTIVE

The completion of a scheme for main haulage by trolley-wire locomotive at Sandhole Colliery in Lancashire marks a new departure in coal mining practice in Great Britain for the use of this type of locomotive is prohibited by the Coal Mines Act of 1911. This installation is in the nature of an experiment which is being carried out by the National Coal Board by special dispensation under the new Regulation which enables the Minister of Fuel and Power to waive this particular clause in the Act in special circumstances. Many mining engineers are of the opinion that a trolley-wire system may be safely used on the main haulage roadways of mines which are laid out on the horizon system and this experiment is being made to obtain concrete evidence on this point.

The track is 1¼ miles long but the gauge is only 1 ft. 9½ in. so the locomotives, which are fitted with two D.C. 250V. motors with a combined rating of 6.2 h.p., had to be designed specially for such a narrow width. The trolley wire is carried on cross-suspensions and is divided into sections of not more than 500 yds. in length to comply with the special rules which have been drafted provisionally for these installations. The various sections are fed from a substation about halfway along the track and conversion from the 2,000V. three-phase supply system is effected by a 120kW. mercury arc rectifier. Pantograph collectors are fitted to the locomotives and the track consists of 60 lb. per yd. track rails.

CHANGING TRENDS IN COAL UTILIZATION

The circumstances which have led to the present importation of large steam coal into Great Britain from the Continent in exchange for small coal for gas making is smptomatic of changing trends in the pattern of coal utilization. For some years past much progress has been made in Continental countries in the development of special boiler furnaces for burning low grade fuels.

An increasing proportion of industrial and domestic consumers of electricity in France are also being supplied from hydro-electric plants and the demand for large coal for most purposes is decreasing. In Great Britain, on the other hand, there is an excessive demand for large coal and too little for the smaller varieties of low grade fuels because of the lack of suitable equipment for their efficient combustion. It is estimated that there is an accumulated stock of 6,000,000 tons of slurry at the pits now and that this is being added to at the rate of 2,000,000 tons a year. It is evident therefore that the National Coal Board itself must give the lead in the efficient use of the lower grades of its own products.

THE ENGINEERING, MARINE AND WELDING EXHIBITION, 1953

If the Engineering, Marine and Welding Exhibition which closed down at Olympia yesterday, after being under the public gaze for the past two weeks, was prevented at the outset from displaying its varied products in a blaze of light, the prestige value of the exhibition was in no way dimmed thereby. Indeed, there would appear to have been some scope for the organizers to have more effectively countered the idea, unwittingly presented by the national press, that the Electricians Trade Unions strike meant that the exhibition was bound to be something of a stygian affair. This, of course, was not the case for the exhibitors, through their own efforts in many instances soon reduced the effects of the strike to a minor nuisance value.

Unlike some Fairs, the Engineering, Marine and Welding Exhibition, which is an established bi-annual attraction, is not presented solely for the purpose of inducing buying orgies on the part of the interested or of the sufficiently inquisitive, but rather as an opportunity for U.K. manufacturers to display quality products of which some are already proven and some just out of the experimental stage. On the other hand, it is viewed as an opportunity for U.K. and foreign manufacturers, whether they come to buy, or to spy, or to take notes for future reference, to see what Britain can offer in the different engineering fields represented. Out of such a conglomeration of factors are successful exhibitions made, and the 1953 display was no exception.

Buyers—actual and prospective—came from several of the Commonwealth countries, notably Australia and New Zealand; Western Europe was represented by contingents from the Low Countries, interspersed with visitors from Western Germany, France, Italy, Yugoslavia, Spain and Scandinavian countries; but there were less than the hoped for numbers from the hard currency areas.

For a country whose production drive has, of necessity, been framed under the stress of "export or bust" the more foreign visitors to the exhibition the better. While the worth of the exhibition is not amenable to a translation into £ s. d., comments gleaned from a fair cross section of the exhibitors indicated general agreement on the prestige value of the exhibition. Moreover, it seems that orders for plant and machinery of the types displayed, or modifications thereof, often materialize months, or even years, later.

Many of the exhibits do not come within the purview of the mining industry, but several of the exhibitors, whose products are well known in the mining and allied industries, displayed various items of machinery and equipment which, suitably modified, would have a use in the mining industry. Short notes on these companies are appended below.

DISPLAYS OF ENGINEERING EQUIPMENT

Metropolitan-Vickers Electrical Co. Ltd. emphasized the marine on its stand in the Grand Hall. But the company's stand in the Empire Hall showed "Thermac" moving coil transformer arc welding equipment, a 60 kVA. air-operated spot-welding machine and a 60 kVA. projection welding machine. Other items included air-operated spot welding machines, a 15 kVA. atomic hydrogen arc welding set and accessories and a 2-ton manipulator for welding and other work. Another aspect of general engineering supply was provided on the stand of *The Butterley Co. Ltd.* in the National Hall. Here was shown, for the first time, a complete oxygen generating plant suitable for installation in the user's own works. A 5-D power press from the company's range of sheet metal machinery was demonstrated.

The associated companies *Richardsons Westgarth (Hartlepool) Ltd., North Eastern Marine Eng. Co. (1938) Ltd.*, and *George Clark (1938) Ltd.*, exhibited models of a Richardsons Westgarth—Brown Boveri turbo—alternator of 30,000 kW. capacity at 22,000 volts, a 2,200 h.p. North Eastern reheated triple-expansion steam engine and various oil engines. In complete contrast, wire, wire rope, fibre rope, "Viking" nylon rope and "Blue Strand" preformed wire rope were exhibited by *British Ropes Ltd.*

The Consolidated Pneumatic Tool Co. Ltd. stand in the Grand Hall displayed portable tools in a wide range and for all industries. These tools varied in size from small items for aircraft work to large units for shipbuilding and heavy engineering. Mining and civil engineering tools and plant were included in the display, such as mining drills, rock drills, pumps, vibrators, and stationary and portable air compressors. In the National Hall the exhibit of *The British Thomson-Houston Co. Ltd.* showed a comprehensive range of electrical and mechanical equipment for industrial and marine use. The industrial section on display included a demonstration of a close-regulation alternator, electric motors, geared motor units, contactors, and a control cubicle for operating soot-blower heads. Also in the National Hall was the display of *T. L. Aluminium Ltd.*, which exhibited a number of the firm's activities in the engineering world. Tubes, strip, and composite sections and sheet were shown.

The General Rubber Goods Division of *Dunlop Rubber Co. Ltd.* displayed rubber products for engineering, general industrial and marine applications including V-belts, in the Grand Hall. Also shown were wire braided high pressure hose in 60 ft. lengths, silicone rubber products for flexibility at extreme temperatures and a wide variety of products. On three stands in the Grand Hall *Ruston and Hornsby Ltd.* exhibited a gas turbine running on load, two 6-cylinder marine propulsion oil engines, a diesel mine locomotive type LBU, 3¼ tons of 27 h.p., a sectional oil engine and a 12-cylinder lightweight, aluminium V-type diesel engine (12 YH) for marine and industrial applications. Many other equipments were shown on this stand. *James Howden and Co. Ltd.* displayed mechanical draught equipment for land and marine steam generating plant, the units shown including exhauster, sinter and mine ventilating fans.

The Metals Division of *Imperial Chemical Industries Ltd.* exhibited condensers, cooler and other special tubes in the National Hall. Alloys shown included "Kunifer" 30 and 30A, "Alumbro," "Resisco," Admiralty and 70/30 brass, together with "Kynal" aluminium alloy extrusions for structural work.

THE PUMPING SECTION

In the Empire Hall, *Sigmund Pumps Ltd.* showed for the first time a newly designed range, together with units representative of the company's range of centrifugal pumps for all branches of industry. Low, medium and high pressure pumps and special duty pumps for chemical process duties were on view. Models showed refinery and power station pump installation.

The Comet Pump and Engineering Co. Ltd. displayed a wide range of products on the gallery of the National Hall. The industrial stand showed a range of Comet slow-speed positive action pumps in operation, including special anti-corrosive, chrome-diffusion pumps. The marine stand featured all pumping applications associated with the burning of boiler fuel oil.

ELECTRICITY IN ENGINEERING

In its display in the National Hall, *The General Electric Co. Ltd.* exhibited marine electrical equipment covering a wide range of applications. The units included propulsion and auxiliary machinery, ventilating and lighting equipment, communications and sound apparatus, fire alarm systems, lifts, self discharging conveyor equipment and the like. A section of a switchboard was included in the display. *The British Electrical Development Association*, on the other hand, devoted its exhibit on the Grand Hall gallery to the theme of "Electricity and Productivity." Demonstrations of electrical methods of inspection and testing were carried out as part of the display.

In the National Hall, *The English Electric Co. Ltd.* (Diesel Engine Division), showed diesel engines for home and overseas service as the main exhibit. Models of a diesel generating station and a sectioned, working, six-cylinder diesel engine were on view together with the OB2 circuit breaker with exciter cubicle as an associated exhibit.

MACHINERY AND EQUIPMENT

A Dual-Purpose Tractor

The spontaneous combustion of small coals is one of the hazards of keeping large coal stocks, such as are maintained at mines, gas plants or power stations. By the exclusion of air, the risk is substantially minimized, and an efficient method of consolidating the coal has been devised by the staff of British Electricity Authority's Ferrybridge Power Station, Yorkshire.

The Fowler Challenger 3 with 2-ton cast iron roller fitted

The bulldozer blade has been removed from their 95 h.p. Fowler Challenger 3 and a cast iron roller weighing two tons, constructed at the station, has been fitted to the standard bulldozer mounting frame. Two men can effect the change inside 15 minutes. Additional weight can be given to the rolling operation by setting the unit in the normal dozer "dig" position, when a considerable part of the tractor's weight is exerted on the roller.

With the roller fitted, the chief duty of the Challenger 3 is to compact a hard level surface on the 33,000 sq. yd. stack, to prevent air from entering and causing spontaneous combustion. It also serves to provide a temporary road, enabling wagons with 6-8 tons coal capacity to travel easily across the surface. The areas most particularly susceptible to spontaneous combustion, of course, are the sides of the stacks, exposed to the fanning effect of prevailing wind. These are regularly compacted, to prevent the ingress of air.

Regular temperature readings are taken at various points on the stack, and should the temperature exceed 120 deg. F., the affected area is dozed out, spread, allowed to cool, and finally consolidated.

A Differential Draught Gauge

A recent development in the range of instruments manufactured by George Kent Ltd. for assisting combustion control is the Differential Draught Gauge. Of the many instruments used in the measurement of differential pressure it is claimed to be the simplest, and is therefore useful on all boiler plants. The gauge is especially useful on those boilers fired with pulverized fuel, the load on the pulverizing mill being indicated by the differential pressure across the mill. There are similar applications for the gauge on sinter plants and like equipments.

The measuring element is a sturdy diaphragm-operated mechanism. The diaphragm divides two pressure-tight chambers, one receiving the upstream pressure and the other the downstream pressure. Two springs, one in either chamber, support this lambskin diaphragm. The spring in the upstream chamber ensures the correct direction of movement of the diaphragm; and the other spring, the control spring, is of calibrated strength and governs the range of the instrument. The movement of the diaphragm is transmitted to the light balanced pointer by means of a linkage system through a pressure-tight hat-leather-type gland. There is a zero-adjusting screw on the pointer arm, which indicates on a bold vertical edgewise scale calibrated in differential-pressure units. When internal illumination is required a translucent scale is used.

Consistent operation is ensured by the generous dimensions of the diaphragm, and an accuracy of ± 20 per cent of maximum differential head is guaranteed. The instrument is capable of measuring up to 30 in. w.g. with differential head. A dust- and fume-proof case houses the differential unit. Ranges available are 0-2, 0-3, 0-4, 0-6, 0-9, 0-12, 0-16, 0-20, 0-25, 0-30 in. differential pressure.

Flameproof Motors For Underground Use

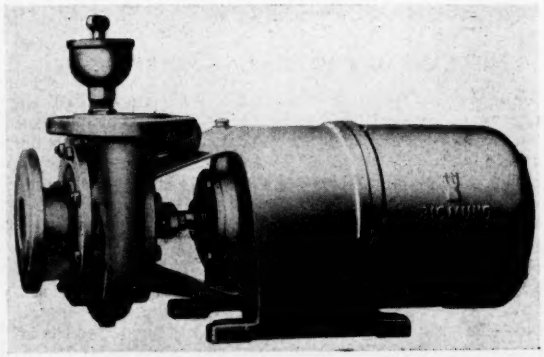
All models of the totally enclosed, fan or natural cooled flameproof motor, manufactured by Newman Industries Ltd., are designed expressly for operation in mines and other locations where it is essential that every risk of explosion or fire should be removed. All models are rated to comply with B.S. 168:1936, and are flameproof in accordance with B.S. 229:1946. Special features of this class of motor are that all metal to metal joints have a total width of machined surface necessary to comply with flameproof specification and Buxton requirements, while extra large ball and roller bearings for the normal h.p. are fitted. The shafts are of extra large section and high tensile quality steel, while cartridge type bearing housings are available as an alternative in the larger sizes so that the removal of bearing brackets with no disturbance of the bearings is possible.

The fan-cooled type F.P.E. motor range has frames rising from 322 to 9412 at h.p. from $\frac{1}{4}$ to 30. Each unit is 50 cycles and pole frame outputs grade from 2 to 12, while r.p.m. rise from 470 to 2,850. The naturally cooled type F.P. motors show identical frame dimensions and r.p.m., and each unit is 50 cycle and pole frame outputs rise from 2 to 12; h.p. rise from $\frac{1}{4}$ to 15. These are an interesting range of units in an industry which calls for a large proportion of flameproof motors.

Pumping Units of Modern Design

Two units have recently been added to the range of manufactures of Sigmund Pumps Ltd. The first, named the SR pump, is a Sigmund version of the integral type and is a complete example of the single shaft technique of centrifugal pump design. The second, of more particular interest to the marine engineer, is an example of one of the Sigmund vertical two-stage centrifugal marine pumps.

The SR unit is presented by the manufacturers as neat and compact, with a self-contained construction which eliminates



The Sigmund SR Stator Rotor centrifugal pump

base plates, couplings, belts and pulleys. The patented ventilation arrangement, together with the simple withdrawal and replacement of the complete stator unit in case of electrical breakdown, are exclusive features. All rotating elements are precision balanced, and the manufacturers claim that the SR unit operates in any desired position.

The vertical two-stage centrifugal marine pumps manufactured by the company comprise a series of single- and two-stage pumps of advanced design.

METALS, MINERALS AND ALLOYS

A fortnight has now passed since Labour Day in the United States without bringing the hoped-for Fall buying and while the period is too short to forbid the hope that it may develop the recent sharp fall on Wall Street suggests that uneasiness still persists. Not unnaturally anxieties about future trade have reacted on the metal market this week and prices generally are below those current a week ago. The decline has intensified the demand by U.S. lead and zinc producers for immediate tariff increases and even quota impositions. The National Lead and Zinc Committee has filed a brief with the U.S. Tariff Commission asking it to recommend to the President an increase in the import duties on these two metals of 50 per cent over the rates existing on January 1, 1945—since reduced by agreements with various countries. Even such an increase in tariff rates they consider "inadequate to provide relief from the destructive consequences" which trade agreement concessions have created. Thus the Lead and Zinc Committee has not waited for the Tariff Commission's hearings on lead and zinc duties fixed for the beginning of November, and seems determined to emphasize the position adopted by the would be tariff reformers at the Congressional hearings of this question earlier in the year. With the tariff talks opening in Geneva this week, and the President's action in remitting the whole question of future U.S. economic policy to Mr. Randall's Commission to render a report next year, the National Lead and Zinc Committee's action would not seem to be more than a propaganda effort at the moment.

Meanwhile, widespread probing of business prospects in the last quarter proceeds actively. The American Management Association has announced for its conference at the end of October that production for a buyers market would be the keynote of the meeting. There is still some anxiety expressed in America regarding the effect of wild cat strikes whereby the Lackawanna plant of the Bethlehem Steel Co. was closed down at the end of last week. However, the slow down at the Garfield Refinery is reported to be petering out. As regards relations generally between Labour and capital, the resignation of Mr. Martin Durkin, President Eisenhower's Secretary of Labour, which it is said puts the Taft-Hartley Act back into politics, may be important for the mid-term elections next year.

COPPER.—There is little to report with regard to copper this week. United States reports of the trade are slow as most consumers have already contracted for their immediate requirements. Negotiations between the U.S. and Chile were expected to open this week, but there is no indication how long they will last. Reports from Santiago are, as usual, highly optimistic and suggest that the amount to be purchased by the United States may be of the order of 100,000 tonnes. In view, however, of the relaxation of stockpiling by the O.D.M. reported last week there may still be complications which may defer a final consummation.

The Nippon Mining Company has reported that Mitsui will import 10,000 tons of copper concentrates from Noranda to be shipped at the beginning of next month at a price of 1 c. under the E. and M.J. quotation at the time of arrival in Japan. The transaction is said to be due to delay in the outcome of negotiations with Chile for supplies from there.

From Northern Rhodesia the decision of mining companies not to be responsible for the check-off from wages for the Union's dues appears to have been largely instrumental in the African Union withdrawing its demand, more particularly for the dismissal of certain mining employees and suggests a less aggressive attitude, at any rate for the immediate outlook.

LEAD.—The strength of the London market which is said to have mystified American observers evaporated this week. The fall in London seems to have reacted on the U.S. market where the New York price was cut on Wednesday to 13½ c. per lb. with the export price, f.a.s. Gulf, down to 11/11.50 c. nom. around which price exceptionally heavy European purchases are believed to have been made. This further fall in prices will stimulate the demands which producers are making for a rise in the tariff on metal from 1 1/16 c., to 2.5 c. per lb., and on concentrates to 1.8 c. as against 0.75 c.

The British Metal Corporation has made another contract with Mitsubishi for the delivery of 2,000 tons of Australian lead concentrates in October, having previously supplied 1,000 tons.

TIN.—Tin has continued to lose ground this week and on Wednesday closed at £597 10s. per ton for cash with three months down to £590. A Reuter cable from La Paz states that the Bolivian Mining Corporation has signed a contract with R.F.C. for the sale of minerals and tin concentrates under which 10,000 tons of tin (concentrates) will be delivered at Pacific Coast ports by March 31 next at prices ruling on the New York Market at that time.

Indonesian production in August is reported as 2,945 tons which brings the eight months' output to 21,817 tons as compared with 22,214 in the same period last year. Another scheme for a Bolivian smelter is reported in a despatch from Boston according to which Mr. C. R. Hayward, Professor of Metallurgy at the "Tech." has developed a new process applicable to much lower grade ore than conventional practice can handle.

The U.S. Steel Corporation has cut its export price 50 c. per base box, or, say $10 per ton. This presumably is in line with the recent decline in the price of tin.

U.S. consumption of primary tin in the first half of the year is reported by the Bureau of Mines at 29,578 tons compared with 21,663 tons in the first half of 1952, which, however, was affected by the steel strike in the summer. Consumption of secondary tin showed less difference being computed as 15,283 tons compared with 14,466 in the corresponding period. Revised figures of tin consumption last year give a total of 73,273 tons (45,323 primary, and 27,950 secondary).

ZINC.—Like lead, zinc has taken a knock this week both here and in the United States where Prime Western prices were cut last week-end to 10 c. East St. Louis and 9.50 nom. export with other qualities quoted at the customary differentials. The U.S. market is described as fundamentally top heavy. Consumer demand remains poor though with foreign material was freely available at under the market price. Despite lower scale production from domestic mines, smelter output in August at 83,241 s.tons was practically the same as in March which was the best figure recorded since May, 1952. Heavy imports of foreign concentrates enable the smelters to achieve large outputs. The National Lead and Zinc Committee are requesting an increase in the import duty from the current 0.7 c. to 2.1 c. per lb. for metal and from 0.6 c. to 1.8 c. for concentrates.

ALUMINIUM.—Aluminium production in the U.S. continues its upward trend. The July output was the largest since wartime conditions ceased, amounting to 109,285 s.tons compared with 104,152 in July. Total production for the seven months is 707,976 s.tons. Shipments of equipment for Alcan's Kitimat big undertaking in British Columbia have been proceeding steadily and it is hoped to get production under way next spring. Naturally aluminium figures largely in the electrical installations in lieu of the older standard practice of using copper. The U.S. Federal Power Commission is to reopen the hearing on the Hell's Canyon project proposed by the Idaho Power Company. The Aluminium Import Corporation's application to be joined in the suit arising out of the cancellation of Alcoa purchases of Canadian aluminium was granted recently and the first-named company has now published the text of its brief in this Anti-Trust suit. Alcoa has started work on modernization and expansion of its fabricating plant near Cleveland, which is expected to cost over $3,500,000. Austrian output in the second half of this year is expected to average about 2,200 tonnes a month. For the first half the average was 3,426 tonnes total being 20,555 tonnes, compared with 16,276 in the same period last year.

QUICKSILVER.—The market is very weak. There are offers in London at much below the official price of £70/£71 ex warehouse, in fact it is possible to buy at around £64, which comprises material from Yugoslavia, India and small Italian offers. The official Italian producer has not altered his price and the same remark applies to Spain, but Almadén has intimated that they would shade their present price of £68.19.4, or $190 per flask for offers from any source and for any

quantity. The United States price is reported as $186/189 delivered nom.

TUNGSTEN.—We have not been able to hear of any business passing in tungsten ores and the market seems practically dead. The Ministry of Supply has lowered its selling price of wolfram ore 65 per cent in this country from 327s. 6d. per unit to 310s. and of scheelite from 312s. 6d. to 300s. delivered.

SILVER.—The significance of the Government statement in Parliament some time ago that, besides manganese, there were other metals or minerals subject to negotiation between Britain and the Soviet, is underlined by the information disclosed this week of a large purchase of silver from Russia, said to total 15,000,000 oz. As was the case of the 3,000,000 oz. reported to have been purchased from Japan earlier, the desire to acquire sterling in exchange is generally suggested as the Soviet move. Why the Russians did not prefer to sell gold, of which they are believed to have very large stocks, instead of silver, may be a matter of some surprise, possibly they are inclined to place too high a value on the royal metal. From the British point of view, this silver transaction does not involve parting with dollars.

Iron and Steel

The entry into production of the new basic open hearth steel plant erected by Dorman Long and Co. at Lackenby has been accomplished with the minimum amount of publicity. It is nevertheless an event of major importance in the British steel industry increasing as its does the national ingot capacity by 500,000 tons per annum. This company has already spent £14,000,000 on post-war developments and has now embarked upon a further five year programme which is estimated to raise the total capital expenditure to a round £50,000,000. The largest single item in the new development plan is the installation at Lackenby of a universal beam and heavy section mill with a designed annual output of 400,000 tons of rolled products.

Elsewhere steel plants are swinging back into full production and although there are a few dull spots a more cheerful tone is developing. Most of the mills have substantial rolling programmes: a steady flow of orders is maintained, and modification of the restrictions upon overseas trade promises acceleration of the expanding trend of the export trade.

One surprising event is the disclosure that it has been decided to abandon at the end of the year the national scrap drive jointly organized by the British Iron and Steel Federation and the National Federation of Scrap Iron, Steel and Metal Merchants. This intensive effort was launched in January, 1951, and only in recent months has the supply overtaken the demand. The position, however, is now much easier.

The London Metal Market

(From Our Metal Exchange Correspondent)

The tin market has again developed a weaker undertone and quotations have fallen during the past week. One of the most important dealers in the market has produced a review in which is questioned the figure of 40,000 tons usually given as the excess of production over requirements when the present R.F.C.'s contracts expire. It is worth bearing in mind, however, that a surplus of very much smaller dimensions will have an almost equal effect in lowering prices, until steps are taken to equate production and consumption or the price fall is sufficient to bring about the same result. The Eastern price on Thursday morning was equivalent to £627 per ton c.i.f. Europe.

Copper remains an uninteresting market with the turnovers dwindling and it seems unlikely that there will be any major developments until after November 5, by which date the market will have been open for three months. It appears that some agreement is being reached between the Chileans and the U.S. Government on the disposal of the former's stock and part of the current production, but it may be some time before all the various government departments concerned have agreed to the final conditions. Both European and American demand remains at a good level.

In spite of the good demand for lead for September delivery and a scarcity of prompt metal, the general price level has fallen owing to weakness in the forward quotation. Demand throughout the world remains up to expectations, and it seems the recession is in sympathy with that sustained by zinc, the price of which has suffered a further setback on consistent selling of forward metal and reports of growing stocks in America. The situation there has given new impetus to the demand for increased duties on lead and zinc, and it is understood that some quarters are also demanding the institution of import quotas. The Tariff Commission is holding a hearing commencing November 3, and it is probable that some kind of recommendation for increased duties will be made, but its acceptance by the Administration seems unlikely in view of its latest pronouncements on trade restrictions in general.

Closing prices and turnovers for the week are given in the following table:—

	September 10		September 17	
	Buyers	*Sellers*	*Buyers*	*Sellers*
Tin				
Cash	£610	£612½	£605	£607½
Three months	£605	£607½	£595	£597½
Settlement	£610		£605	
Week's turnover	565 tons		620 tons	
Lead				
Current month	£95¾	£96	£89½	£90
Three months	£91¼	£91¾	£86⅜	£86⅝
Week's turnover	3,225 tons		5,950 tons	
Zinc				
Current month	£70½	£70¾	£68½	£68¾
Three months	£70	£70½	£67¾	£68
Week's turnover	5,100 tons		4,850 tons	
Copper				
Cash	£230	£232½	£232½	£235
Three months	£213½	£214½	£218	£218½
Settlement	£232½		£235	
Week's Turnover	3,425 tons		2,900 tons	

SEPTEMBER 17 PRICES

COPPER, TIN, LEAD AND ZINC

(See our London Metal Exchange report for Thursday's prices)

ANTIMONY

English (99%) delivered, 10 cwt. and over .. .. £225 per ton
Crude (70%) .. .. .. £210 per ton
Ore (60% basis) .. .. .. 20s. — 22s. nom. per unit, c.i.f.

NICKEL

99.5% (home trade) .. .. £483 per ton

OTHER METALS

Aluminium, 99·5% £150 per ton
Bismuth (min. 4 cwt. lots) 16s. 6d. lb.
Cadmium (Empire), 13s. 10d./14s. 4d. lb.
Chromium, 6s. 5d./7s. 6d. lb.
Cobalt, 20s. lb.
Gold, 248s. f.oz.
Iridium, £60 oz. nom.
Magnesium, 2s. 10½d. lb.
Manganese Metal (96%-98%) £280/£295
Osmiridium, £40 oz. nom.
Osmium, £65/70 oz. nom.
Palladium, £7 15s./£8 10s. oz.
Platinum, £27/£33 5s.
Rhodium, £42 10s. oz.
Ruthenium, £25 oz.
Quicksilver, £70/£70 10s. ex-warehouse
Selenium, 30s. 6d. nom. per lb.
Silver 74d. f.oz. spot and f'd.
Tellurium, 15s./16s. lb.

ORES, ALLOYS, ETC.

Bismuth .. .. 65% 8s. 6d. lb. c.i.f.
50% 7s. 3d. lb. c.i.f.
Chrome Ore—
Rhodesian Metallurgical (lumpy) £14 8s. 0d. per ton c.i.f.
" " (concentrates) £14 8s. 0d. per ton c.i.f.
" " Refractory £14 0s. 0d. per ton c.i.f.
Baluchistan Metallurgical .. £16 11s. 6d. per ton c.i.f.
Magnesite, ground calcined .. £26 - £27 d/d
Magnesite, Raw .. .. .. £10 - £11 d/d
Molybdenite (85% basis) .. 103s. 10½d. per unit c.i.f.
Wolfram (65%) .. .. .. World buying nom.
" " .. .. .. 310s. nom. U.K. Selling
Scheelite .. .. World buying nom.
" .. .. 300s. nom. U.K. Selling
Tungsten Metal Powder .. .. 24s. 3d. nom. per lb. (98% Min. W.) (home)
Ferro-tungsten .. .. .. 21s. 4d. nom. per lb. (home)
Carbide, 4-cwt. lots .. .. £35 13s. 9d. d/d per ton
Ferro-manganese, home .. .. £49 15s. 0d. per ton
Manganese Ore Indian c.i.f. Europe (46%-48%) .. .. .. 7s. 11d. - 8s. 7d. per unit
Brass Wire .. .. 2s. 5¾d. per lb. basis
Brass Tubes, solid drawn .. 1s. 10d. per lb. basis

THE MINING MARKETS

(By Our Stock Exchange Correspondent)

There was no support from Johannesburg and old mines were particularly weak. In London the public remained out of the market. A noticeable feature nowadays is the lack of "shop" support. Although institutions show share trading profits in their balance sheets, these can be made on a falling market as well as a rising one. It seems probable that many of the leading institutions have stretched their resources to the limit to provide money for new developments. In view of the work still to be carried out, the question may soon arise as to how low Kaffirs may safely be allowed to go before the finding of fresh finance becomes virtually impossible.

West Rand Consols continued to disappoint the market. It is now clear that increased uranium production must be made at the expense of gold. Daggafonteins fell on rumours emanating from Johannesburg that there had been a hitch in the production of uranium. Randfontein and Luipaardsvlei were also marked down. The Randfontein uranium plant will be a large one. The mine is now operating on a very narrow margin of profit for its gold. Unless there is an increase in the price of the metal, it looks as though this mine must in future be considered principally as a uranium producer. Luipaardsvlei may eventually be in a somewhat similar position.

In the O.F.S., all round declines were recorded. Here again, it was the same story of no support and investors looking askance at the large sums of money necessary to bring the mines into production. Merriespruit failed to respond to the KA. 3 borehole results which in any event were not particularly stimulating. Welkom recorded another considerable fall. President Steyn alone slightly improved on hopes of better development announcements shortly. Many of these price falls may reflect doubts over technical difficulties encountered in the O.F.S. With narrow reef bands, much of the stoping width must necessarily be waste and is bound to add to the cost of mining operations.

West African shares were quiet, but fresh demand developed for Ashantis which at one time touched 23s. 9d. They closed below this level but still better than last week. Kwahu were also higher at 4s. 4½d. This company has a considerable interest in Esperanza.

In the Western Australian field, most of the leaders were higher following market consideration of the tax proposals for the Australian budget. While this field has also suffered from political factors in the past, these have been of a rather different nature from those affecting African mines. Any revival of interest in the sector might reasonably be expected to have some effect in narrow market conditions.

Diamonds fell, affected by the setback on Wall Street. De Beers followed this trend despite the maintained interim dividend of 80 per cent.

Coppers were no exception to other mining markets. Most major issues in this sector fell. It was announced that the Esperanza mine was unaffected by the earthquake in Cyprus. The premium in the Bancroft shares came back to 1s. Rhodesian Katanga fluctuated sharply in anticipation of the coming borehole results. The dominating factor in this sector was again Wall Street. The African unions in Rhodesia are clearly worried by the companies' intention not to collect their increased dues. Can it be that they fear their inability to extract them from their members without the companies' assistance?

Tins were rather featureless but Amalgamated Tin and Bisichi in the Nigerian section were firm on columbite returns and prospects. Rumours that tungsten may be handed back to free market dealings had little effect on Beralts.

Elsewhere, Murchison fell sharply and the premium of Wankie new shares, after rising to 1s., came back later to 9d. That on the debentures also declined sharply on Wednesday.

FINANCE	Price Sept. 16	+ or — on week
African & European	2	—⅛
Anglo American Corpn.	5⅞	—⅛
Anglo-French	17/9	—3d
Anglo Transvaal Consol.	21/3	.....
Central Mining (£1 shrs.)	28/1½	—7½d
Consolidated Goldfields	48/-	+3d
Consol. Mines Selection	23/9	—1/3
East Rand Consols	2/6	.....
General Mining	3⅛	—⅛
H.E. Prop	38/1½	—7½d
Henderson's Transvaal	7/3	—3d
Johnnies	53/6	+4½d
Rand Mines	3½	+⅛
Rand Selection	30/7½	.....
Strathmore Consol.	30/-	.....
Union Corp. (2/6 units)	26/9	+3d
Vereeniging Estates	3⅜	.....
Writs	32/6	—7½d
West Wits	39/4½	—1/3
RAND GOLD		
Blyvoors	38/6	—10½d
Brakpan	10/6	.....
City Deep	18/1½	—7½d
Consol. Main Reef	19/4½	.....
Crown	33/1½	.....
Daggas	3⅛	—⅛
Doornfontein	20/-	—7½d
Durban Deep	35/-	—7½d
E. Daggas	13/3	—3d
E. Geduld (4/- units)	30/-	—7½d
E. Rand Props	2⅜	.....
Geduld	4⅛	—⅛
Govt. Areas	12/-	—3d
Grootvlei	21/6	—3d
Libanon	9/-	—4½d
Luipaards Vlei	21/-	—6d
Marievale	18/6	.....
Modderfontein East	17/6	.....
New Kleinfontein	18/1½	—10½d
New Pioneer	16/3	—9d
Randfontein	38/6	—1/3
Robinson Deep	10/9	.....
Rose Deep	12/-	—1/-
Simmer & Jack	4/9	.....
S.A. Lands	20/7½	—1/10½
Springs	4/1½	—1½d
Stilfontein	25/9	—6d
Sub Nigel	2⅞	—⅛
Van Dyk	5/6	—3d
Venterspost	12/3	.....
Vlakfontein	13/3	—6d
Vogelstruisbult	30/9	—6d
West Driefontein	6¼	—¼
W. Rand Consolidated	2⅛	—⅛
Western Reefs	2¼	—⅛

O.F.S.	Price Sept. 16	+ or — on week
Freddies	8/9	—9d
Freddies N.	8/9	—9d
Freddies S.	8/6	—7½d
F. S. Geduld	2⅛	—⅛
Geoffries	13/9	—6d
Harmony	20/3	—9d
Loraine	7/9	.....
Lydenburg Estates	11/6	—3d
Merriespruit	8/-	—1½d
Middle Wits	14/9	—6d
Ofsits	33/9	—1/10½
President Brand	26/3	+1½d
President Steyn	22/-	+6d
St. Helena	12/-	—6d
Virginia Ord.	11/3	—6d
Welkom	17/-	—1/4½
Western Holdings	3⅛	—⅛
WEST AFRICAN GOLD		
Amalgamated Banket	1/10½	.....
Ariston	6/1½	.....
Ashanti	23/3	+3d
Bibiani	5/7½	.....
Bremang	2/3	.....
G.C. Main Reef	3/7½XD	.....
G.C. Selection Trust	6/4½	—1½d
Konongo	2/7½	.....
Lyndhurst Deep	1/-	.....
Mariu	1/6	.....
Taquah & Abosso	4/-	.....
AUSTRALIAN GOLD		
Boulder Perseverance	2/6	.....
Gold Mines of Kalgoorlie	13/10½XD	+7½d
Great Boulder Prop.	10/-	—1½d
Lake View and Star	13/9	—4½d
Mount Morgan	17/6	+6d
North Kalgurli	7/3	.....
Sons of Gwalia	6/3	.....
South Kalgurli	7/-	+4½d
Western Mining	12/10½	—3d
MISCELLANEOUS GOLD		
Cam and Motor	9/9	+1½d
Champion Reef	4/6	—3d
Falcon Mines	6/4½	.....
Globe & Phoenix	24/-	—1/3
G.F. Rhodesian	5/6	+4½d
London & Rhodesian	4/9	—3d
Motapa	1/6	.....
Mysore	3/3	+3d
Nundydroog	5/9	—3d
Ooregum	4/6	+3d
Oroville	11/6	—3d

MISCELLANEOUS GOLD (contd.)	Price Sept. 16	+ or — on week
St. John d'El Rey	25/6	—1/6
Zams	25/6	—1/3
DIAMONDS & PLATINUM		
Anglo American Inv.	3⅜	—⅛
Casts	21/3	—6d
Cons. Diam. of S.W.A.	4⅛	—⅛
De Beers Defd. Bearer	62/9	—9d
De Beers Pfd. Bearer	15½	—⅜
Pots Platinum	6/9	.....
Watervaal	11/9	.....
COPPER		
Chartered	52/3	—2/-
Esperanza	4/6	.....
Indian Copper	4/-	.....
Messina	3⅛	—⅛
Nchanga	6⅛	.....
Rhod. Anglo-American	47/6XR	—6d
Rhod. Katanga	11/3	—1/-
Rhodesian Selection	14/10½	—6d
Rhokana	18⅛XR	—⅛
Rio Tinto	19½	—1
Roan Antelope	13/4½	—4½d
Selection Trust	30/7½	—1/7½
Tanks	58/3	—2/3
Tharsis Sulphur Br.	42/6	.....
TIN (Eastern)		
Ayer Hitam	24/3XD	—9d
Bangrin	8/-	.....
Gopeng	8/-	—1½d
Hongkong	6/1½	—1½d
Ipoh	15/7½	—7½d
Kamunting	8/-	—3d
Kepong Dredging	4/3XD	—1½d
Kinta Tin Mines	10/-XD	—3d
Malayan Dredging	23/-XD	.....
Pahang	13/-	—4½d
Pengkalen	8/3	—3d
Petaling	8/6	—6d
Rambutan	10/-	.....
Siamese Tin	8/4½	—4½d
Southern Kinta	12/3	—3d
S. Malayan	23/-XD	.....
S. Tronoh	7/6	—9d
Sungei Kinta	10/-	.....
Tekka Taiping	4/9	+1½d
Tronoh	22/3XD	—3d
TIN (Nigerian and Miscellaneous)		
Amalgamated Tin	10/1½	+3d
Beralt Tin	27/3	—3d
Bisichi	4/-	+1½d
British Tin Inv.	13/-XD	—9d
Ex-Lands Nigeria	3/7½	.....

TIN (Nigerian and Miscellaneous) contd.	Price Sept. 16	+ or — on week
Geevor Tin	9/6	—3d
Gold & Base Metal	3/4½	.....
Jantar Nigeria	7/1½XR	—6d
Jos Tin Area	11/3	.....
Kaduna Prospectors	2/3	.....
Kaduna Syndicate	2/6	.....
London Tin	5/3	+3d
United Tin	2/3	.....
SILVER, LEAD, ZINC		
Broken Hill South	2⅞	+⅛
Burma Mines	1/4½	.....
Consol. Zinc	24/-	—1/-
Lake George	9/4½	—1½d
Mount Isa	32/3	.....
New Broken Hill	22/-	—9d
North Broken Hill	2¼	.....
Rhodesian Broken Hill	10/9	—1½d
San Francisco Mines	17/6	—6d
Uruwira	2/9	.....
MISCELLANEOUS BASE METALS & COAL		
Amal. Collieries of S.A.	43/9	—3d
Associated Manganese	45/9	—1/3
Cape Asbestos	20/10½	—3d
C.P. Manganese	56/10½	.....
Consol. Murchison	20/7½	—1/4½
Mashaba	4½d	.....
Natal Navigation	3½	.....
Rhod. Monteleo	5/-	.....
Turner & Newall	55/3	—6d
Wankie	11/-XR	+6d
Witbank Colliery	3⅛	.....
CANADIAN MINES		
Dome	$30	.....
Hollinger	$23½	—1½
Hudson Bay Mining	$76	—1
International Nickel	$70½	—1
Mining Corpn. of Canada	£3½	—½
Noranda	$123	—1
Quemont	£6½	.....
Yukon	3/10½	+1½d
OIL		
Anglo-Iranian	7½	—¼
Apex	38/9	.....
Attock	31/10½	—1/3
Burmah	53/9	—1/10½
Canadian Eagle	29/-	—7½d
Mexican Eagle	22/1½	—1½d
Shell (bearer)	4⅞	—⅛
Trinidad Leasehold	27/6	+3d
T.P.D.	22/-	—6d
Ultramar	25/10½	—3d

COMPANY NEWS AND VIEWS

The Kolar Gold Field Group in 1952

Because the four gold producing companies on the Kolar Gold Field did not commence operations as Indian Incorporated Companies until April 1, 1951, the report and accounts for their respective financial years ended December 31, 1951, only covered nine months' operation. Thus the report and accounts of these four companies—Champion Reef, Mysore, Nundydroog and Ooregum, dealing with operations for the calendar year 1952, do not provide a strict comparison with the 1951 results.

Year to Dec. 31 1952	*Champion Reef G.M. of India* (K.G.F.)	*Mysore G.M.* (K.G.F.)	*Nundydroog Mines* (K.G.F.)	*Ooregum G.M. of India* (K.G.F.)
Milled (tons)	148,890	206,172	228,082	127,180
Grade (dwt.)	8.93	7.22	5.71	5.45
Yield (oz.)	66,477	74,729	65,165*	34,600
Gold Sales (Rs.)	1,58,78,386	1,77,14,737	1,60,09,380	82,45,635

* Excluding gold recovered from old tailings.

The background against which the four companies operations in 1952 should be viewed includes a steep fall in the gold price in the early part of 1952, power cuts, shortage of water, higher labour costs, and a heavy burden of taxation.

While not all of these factors can be pointed to as causing the closure of Ooregum—announced in the early part of this year—nor for the considerably reduced profits of Champion Reef which experienced rock bursts and a fire, they did, nevertheless, act as a serious brake on the companies' progress.

Year to Dec. 31 1952	*Champion Reef G.M. of India* (K.G.F.) Rs.	*Mysore G.M.* (K.G.F.) Rs.	*Nundydroog Mines* (K.G.F.) Rs.	*Ooregum G.M. of India* (K.G.F.) Rs.
Gross Revenue	1,51,45,667	1,68,93,453	1,53,16,782	78,98,128
Working Profit	30,17,946	24,55,864	20,43,696	1,45,422
Taxation	11,36,924	6,90,084	5,60,576	Nil
Dividend	6%	6%	7½%	Nil

The steep fall in the gold price in the early part of 1952 was one of the chief factors affecting the financial health of the companies, although it was particularly irritating for the companies to experience power cuts which, as the chairman, Mr. M. A. Sreenivasan, points out in his statement to shareholders, have become a recurring hazard. This situation is beyond the control of the companies which are precluded from installing their own generating plants because sources of power are nationalized. However, he notes that the State Governments of Bombay and Madras are taking steps to install thermal stand-by plants of adequate size and he expresses the hope that the Mysore Government would not lag behind in installing similar plant.

Turning his attention to India as a whole, Mr. Sreenivasan discussed some of the salient points in connection with the country's First Five Year Plan which, he said, was considered as the forerunner of many more such plans to come. The Plan recognizes the roll of private enterprise and individual initiative but in this connection could not help sharing the general belief that India's economic planet during the past few years had not been conducive in stimulating either the initiative nor the investment needed for industrial development.

On the subject of taxation he felt that the appointment by the government of the Taxation Enquiry Commission was particularly timely and the boards of the companies have made reasoned representations concerning the existing tax codes, to the Indian Government. His view is that the structure of taxation in mining in general and of the gold mining industry in the Kolar Gold Field in particular, has been out of line with other countries of the world which have been more successful in developing their mineral wealth.

North Kalgurli Forges Ahead

The preliminary profit statement issued by North Kalgurli (1912) announces the payment of a final dividend of 7½d. per 2s. share making, with the interim of 6d. per share paid on March 31 last, a total distribution of 1s. 1½d. per 2s. share for the year ended December 30, 1952. The final dividend was paid on an issued capital of £220,000, as increased during the year by a one-for-one scrip issue, being equivalent to 31¼ per cent whereas the interim payment of 6d. per share was paid on the former capital of £110,000. The total payment of 62½ per cent less tax in 1951 was made up of a 6d. interim and 9d. final per 2s. share.

Year	*Working Profit* £	*Taxation* £	*Net Profit* £	*Available* £	*Dividend* £	*Carry Forward* £
1952*	105,216	61,776	43,440	190,241‡	52,250	41,927
1951†	93,310	48,882	44,428	86,831	36,094	50,737

* Accounts cover financial year ended December 30, 1952.
† Accounts cover financial year ended January 1, 1952.
‡ Includes tax provision no longer required of £96,064 (previous year—nil), and £50,737 brought in (previous year—£42,403).

From the production returns, covering four weekly periods, issued by the company it seems probable that the higher working profit last year was partly due to the increased gold production which at approximately 60,375 f.oz. showed an increase of 1,447 f.oz. over the preceding year. Unfortunately, taxation liabilities increased by nearly £12,000 thereby reducing net profit to virtually the same as in the preceding year. However, the net figure shown in the above table was struck before crediting tax provision no longer required of £96,064 (nil) which sum was allocated to reserve against advanced development account.

Operations from the beginning of 1953 to August 11 last, appear to be proceeding very satisfactorily. Tonnage milled at approximately 165,000 tons represents an increase of more than 20,000 tons while gold production at 38,366 f.oz. compares with 36,668 f.oz. in the same period during the year under review.

The final dividend will be paid on October 29 to all members registered on October 1. Mr. C. T. Ley is chairman. The annual meeting will be held on October 28.

Naraguta Tin Earns More, Pays Same

The preliminary profit statement issued by Naraguta Tin Mines covering operations for the year ended December 31, 1952, showed an expansion of profits, before tax, but after charging depreciation, by £18,743 to £64,435—indicating, perhaps, the high price received for its columbite production. Moreover, this figure was struck after providing £8,539 (£9,594) for prospecting expenditure and, too, was not augmented by a dividend from the company's wholly-owned subsidiary against £4,000 in 1951.

Year to Dec. 31	*Production Tin*	*C'bite* (Tons)	*Working Profit** £	*Taxation* £	*Net Profit* £	*Dividend* %	*Carry Forward* £
1952	281	44	64,435	41,550	22,885	7½	23,340
1951	254¼	54	45,692	27,250	18,442	7½	16,081

* After changing depreciation.

Taxation took £14,300 more at £41,550 which included E.P.L. liabilities of £6,550 (nil), the maintenance of the dividend distribution required a net £9,075 (£8,663), and after allocating £5,000 (£4,102) to general reserves, the carry forward was left stronger at £23,340 compared with £16,081 brought in.

Consolidated Accounts

Year to Dec. 31	*Group** *Profit* £	*Taxation* £	*Net Profit* £	*Allocation of Profits: Holding Co'y* £	*To Reserves* £	*Carry Forward* £
1952	73,122	48,042	24,618	68,504	12,432	34,255
1951	66,798	41,952	24,846	54,978	5,899	32,333

* After changing depreciation.

The dividend will be paid on November 26 and the annual meeting will be held in London on October 21.

West African Gold Returns in August

The August mine returns from nine of the West African gold producers published below, together with their cumulative totals, provides a good basis for commenting on what their profit positions will be at the end of their respective current financial years.

Of the six companies which have completed eleven months of their current financial year, three of them, Ashanti, Konongo,

and Marlu, will most certainly record better figures. Ashanti has shown consistently good results throughout the whole of the current year and the cumulative profit figure to date gives every hope that the company will be able to maintain its dividend payments at the same rate as last year. Marlu's working profit figure for August of £22,302 has not been bettered since November. 1952, and this company appears to have definitely turned the corner. Konongo produced an interesting return in that 2,543 oz. were recovered from the 2,525 tons crushed, indicating that the grade of ore currently being sent to the mill is averaging around 20 dwt. per ton.

Company	August, 1953 Tons (000)	Yield (oz.)	Profit* (£000)	Months since year end	Current Financial Year Total to date Tons (000)	Yield (oz.)	Profit* (£000)	Last Financial Year Total to date Tons (000)	Yield (oz.)	Profit* (£000)
A.B.A.	60	9,856	16.1	11	660	101,738	198	569	93,640	217
Ariston Gold	28	8,868	30.2	11	317	107,276	484	302	105,235	522
Ashanti	24	15,246	70.4	11	254	164,778	826	204	151,890	741
Bibiani (1927)	30	6,210	6.1	11	333	67,871	122	330	64,756	154
Bremang†	430	2,019	3.9	8	4,578	21,258	91	4,827	23,500	122
G.C.M.R.	9	3,757	13.5	2	18	7,169	23	17	6,045	15
Konongo	2	2,543	13.3	11	27	25,423	119	27	24,051	109
Marlu Gold	43	4,742	22.3	11	463	44,995	150	436	41,084	91
Taquah and Abosso	24	5,803	10.3	5	124	20,117	59	106	23,765	L 49

*Including premium revenue since November, 1951. As the basis of calculating monthly profit varies from company to company a direct comparison one with another is not possible. The basis for any one company has, however, remained consistent, unless otherwise indicated.
†Ore treated given in cu. yd. L indicates a loss.

Taquah and Abosso continues to progress with the profit figures on the right side of the ledger and there is no doubt that its profit and loss account when published, covering the current year's results, will be vastly different from the accounts dealing with the results obtained for the year ended March 31, 1952.

August Tin Returns

The August tin output returns and eight month cumulative totals, together with the cumulative totals in the preceding year, in tons of tin concentrates are published in the table below.

Of the companies in the Eastern section, Ampat, aided by Tujoh dredge which commenced production in February last, Bangrin, Kinta Kellas, Rawang Concessions, and Renong were companies able to show a marked improvement in production over the corresponding period of the preceding year. But Kuchai, whose dredge was closed down for fourteen days in August due to a broken second motion shaft, Larut, Southern Kinta and Tanjong Tin were companies whose results showed up to a disadvantage with the results achieved in the corresponding period of the preceding year.

AUGUST TIN OUTPUT IN TONS OF TIN CONCENTRATES

Company	Aug.	Months since year end	Financial Year to Date This	Last	Company	Aug.	Months since year end	Financial Year to Date This	Last
EASTERN					**NIGERIA**				
Ampat	109½	8	824	692	Amal. Tin	317	5	1569	1774
Bangrin	74	8	482½	380	*Bisichi	20	8	109	111
Batu S.	17	11	178½	262	Bisichi	35	8	317	381
Berjuntai	47½	4	189½	308	Ex-Lands	50	8	392	381
Kampong	18½	5	114½	123	*Jantar	12	11	198	194
Kamunting	83½	5	534½	982	Jantar	14	11	196	236
Kinta K.	23¼	5	110½	59	Kaduna P.	12	8	76	54
Kinta T.	32	8	213½	183	Kaduna S.	33	8	201	155
Klang River	43¼	5	198½	157	*Keffi	17½	5	17½	Nil
Kuala K.	155	5	827½	808	Naraguta Ex.	7	8	46½	55
Kuchai	9½	11	422½	757	Naraguta K.	15½	8	88½	80
Larut	45½	8	347½	533	*Naraguta T.	4	8	32½	37
Lower Perak	70½	4	276½	313	Naraguta T.	18½	8	152½	202
Malaysiam	12	5	33	26	Ribon	11	5	46	32
Pahang	220	1	220	220	Rukuba	2½	5	10½	7½
Rahman	45½	2	89	68	S. Bukeru	6½	8	47½	38
Rantau	44½	2	97½	132	Tinfields of Nig.	1½	5	13½	7½
Rawang Conc.	57½	5	306½	233	*U. Tin	⅛	2	⅛	Nil
Renong	59	2	125½	48	U. Tin	6	2	14	21
Sthn. Kinta	357½	5	1652½	2052					
Tambah	15½	8	61½	85	**MISC.**				
Tongkah	34½	2	66½	147	†Beralt Tin	195	5	915	936
Tanjong Tin	78	8	543	714	Beralt Tin	10	5	42	58
NIGERIA					Geevor	40	5	268	230
*Amal. Tin	80	5	265½	169	S. Crofty Tin	39	8	354½	295

* Columbite † Wolfram

Broadly speaking, the Nigerian tin and columbite producers are showing better results than that achieved at the same time a year ago. In particular the columbite output of Amalgamated Tin Mines of Nigeria showed a big improvement; the same comment can be applied to the tin production of the two Kadunas, South Bukeru, Ribon Valley and Tin Fields of Nigeria.

In the miscellaneous section Beralt Tin and Wolfram is slightly down over the corresponding wolfram figure achieved in the preceding year but its wolfram output for August at 195 tons was the best result announced since July, 1952. The two Cornish producers—Geevor and South Crofty—output for August was affected by the annual holidays although both mines have a margin of advantage over the corresponding figures a year ago.

NIGERIAN ELECTRICITY SUPPLY CORPORATION

INCREASE IN UNITS SOLD

The twenty-fourth Annual General Meeting of the Nigerian Electricity Supply Corporation Limited was held on September 15 at 66 Queen Street, E.C.4.

Mr. George Hemmant, C.M.G., Chairman of the Company, presided.

The following is his review for the year ended February 28, 1953:

The increase from £231,959 to £274,782 in the revenue from power sales was due to a combination of favourable circumstances. The annual dry season was not unduly prolonged, and the additional water impounded at Tenti, where the height of the dam had been raised in the previous year, proved to be sufficient to provide power up to the end of the dry season without any restriction of power consumption. In the two preceding years it was necessary towards the end of the dry season to restrict consumption but such restriction should become unnecessary in any normal year when the second Jekko power station, now approaching completion, is in operation. During the year under review power rates were raised and the higher rates coincided with a considerably increased demand for power by all consumers. The increase in the revenue from power sales due to these favourable conditions amounted to £43,000 and was made up thus:

The increase in the number of units sold realized £17,000
The increase in the rates for power realized ... £26,000

The number of units sold rose from 54,830,619 in the previous year to 59,503,037 in the year under review—an increase of 4,672,418 or 8½ per cent. Bulk Sales to the Electricity Corporation of Nigeria increased by 20 per cent and have doubled in the last five years. They still represent only 9 per cent of our total power sales.

Operational costs rose by £11,000 of which £9,000 was due to increased expenditure on wages and materials.

An additional £10,000 has been provided for Depreciation, and the appropriation of £20,000 to plant replacement reserve of last year has been repeated. The usual dividend and bonus are recommended and the Balance Carried Forward will be increased by £16,000.

Turning to the Balance Sheet it will be noted that Fixed Assets have risen by £120,067 to £1,326,349. This increase was due primarily to the construction of the new Jekko power station. Work on this construction, which had been interrupted by delay in the delivery of the heavy plant from this country, was resumed at the beginning of the year under review, and good progress has been made without further interruption. Unless the unforeseen happens the station should be in operation in November.

Relations with consumers have been most cordial and their co-operation has been of great value to the Board and to our Manager and his Staff.

The good results in the year under review could not have been obtained without the loyal and efficient services of our Manager, Mr. H. P. Brace, and his European and African Staff in Nigeria, and our thanks are due to them and to our Secretary and Staff in London.

We have also to thank our Consulting Engineers, Messrs. Mackness and Shipley and our Technical Advisers and Agents, Messrs. Balfour, Beatty and Co. Limited, for their services in London.

The report and accounts were adopted.

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WESTERN MINING CORPORATION

HIGHER REVENUE

The twentieth annual ordinary general meeting of Western Mining Corporation, Ltd., was held on September 10 in Melbourne.

Mr. G. Lindesay Clark, B.Sc., M.M.E. (chairman and managing director), presided and, after paying tribute to the memory of the late chairman, Sir Walter Massy-Greene, in the course of his speech said (the figures quoted are in Australian currency):—

Net profit for the year was £189,255, compared with the £73,906 earned in the previous year. This was mainly due to additional dividends received from Central Norseman Gold Corporation N.L., from which we received £164,063, compared with £32,812 in 1951-52. Dividends received from Gold Mines of Kalgoorlie (Aust.), Ltd., amounted to £28,889, compared with £28,867 in 1951-52.

The net profit to be carried to the credit of appropriation accounts amounted to £189,255. This amount, together with the balance brought forward, £488,876, gave a total to the credit of appropriation accounts of £678,131. Taxation amounted to £4,098 and dividends Nos. 10 and 11, each of 6d. per stock unit, which were paid on August 22, 1952, and February 27, 1953, took £139,718 and left a balance to be carried forward to the credit of appropriation accounts of £534,315. Since the close of the year dividend No. 12, also of 6d. per stock unit, and taking £69,859, has been declared and was paid on August 21, 1953.

In order to pay off the residue of the Western Mining Corporation loan and provide extra working capital, a rights issue at par to shareholders of New Coolgardie Gold Mines N.L., on a basis of one share for each five now held, is being made by New Coolgardie Gold Mines N.L. Western Mining Corporation is entitled to rights to 106,400 shares from this issue. Arrangements have been completed to sell these rights, which will leave Western Mining Corporation still holding 52 per cent of the shares of New Coolgardie Gold Mines N.L.

Additional finance is needed by Great Western Consolidated N.L. to carry out an expedited development programme. This has been provided on loan by the company's bankers, the loan being guaranteed by Western Mining Corporation, Ltd. In return for giving this guarantee Western Mining Corporation, Ltd., is to receive the option to subscribe for 500,000 10s. shares at a price of 8s. each for a period of five years from May 25, 1953. This option supersedes the previous option granted to Western Mining Corporation, Ltd.

MINING DEVELOPMENTS

At Central Norseman, since the close of the financial year, a drill hole below No. 29 Level on the Mararoa vein gave an intersection of 11.7 dwt. over a true width of 42 in. A winze at the same co-ordinate has recently come into intermittent reef at 30 ft. below the level, recent assays being variable. The drive on the No. 34 Level northwards has been on strong reef, but as yet, only low values. It is hoped that these are the first indications of a new group of ore-shoots in depth and to the north of the areas now being worked from the Regent shaft.

Turning to the Princess Royal Mine, the principal development has been the extension southwards of the high-grade orebodies located near the Royal shaft.

At New Coolgardie, the main points of interest are the encouraging developments at Callion, which give hope of considerably more ore at this property than was previously expected. During the year the Bayleys group of leases, which are in the immediate vicinity of the Bayleys mill, were secured by the company.

The purchase of the Paringa leases was the most important happening in the affairs of Gold Mines of Kalgoorlie (Aust.), Ltd. The orebodies in these leases can be worked much more economically as part of Gold Mines of Kalgoorlie than they could be by the Paringa Company itself. In consequence, a considerable tonnage of ore from the known lodes or extensions will be profitable to mine.

After referring to happenings at Great Western Consolidated N.L., Kalgoorlie Southern Gold Mines N.L., Central Victoria Dredging Company N.L. and Gold Mines of Australia, Ltd., the chairman continued.

For some time the Board has thought that the affairs of the Corporation would be more balanced if it engaged in the mining of other metals in addition to gold. It may be that development of uranium resources would provide a means of putting this policy into effect. The Board will accordingly endeavour to acquire a uranium prospect warranting development.

The report was adopted.

GOLD MINES OF KALGOORLIE (AUST.)

ACQUISITION OF PARINGA LEASES

The 2nd annual ordinary general meeting of Gold Mines of Kalgoorlie (Aust.) Limited was held on September 9 in Melbourne.

Mr. G. Lindesay Clark, B.Sc., M.M.E. (the chairman), presided and in the course of his speech said:

(The figures quoted are in Australian currency)

The balance to the credit of Appropriation Accounts at March 31, 1952, was £40,067, which, after crediting net profit of £164,319, made a total of £204,386. Loss on Realization of Equipment, £5,639 was debited to this account together with £96,055 for Dividends Nos. 2 and 3 of 9d. and 6d. per stock unit respectively, leaving a balance of £102,692 to be carried forward. A further Dividend, No. 4 of 9d. has just been declared, and will be paid on November 6, 1953.

Average working costs at 72.23s. per ton were 6.99s. per ton higher than for 1951-52, and more than offset the additional revenue received from the rise in grade, working profit per ton having declined from 22.82s. in 1951-2 to 20.67s. in the year under review. Gross Profit is therefore £15,478 lower at £178,656 and net profit, which was £180,616 in 1951-52, was £164,319 for the year just ended.

Gold Producers' Association Limited sold gold relating to the full year's production and actual and estimated receipts from this source are included in the accounts at £42,255, equivalent to 17.3s. per fine ounce of gold produced. Additional gold premium receipts in respect of 1951-52 production amounted to £2,600 and have also been brought to account. The premiums received for gold sold on the free market have declined in recent months.

DEVELOPMENT OPERATIONS

Development for the year totalled 9,142 ft. of which 2,990 ft. or 32.7 per cent of the total footage was in ore averaging 9.2 dwt. over 64 in. These results are reflected in the ore reserves which were estimated at 579,000 tons averaging 6.5 dwt. per ton compared with 486,000 tons averaging 6.3 dwt. at March 25, 1952.

Favourable developments have continued since the close of the year. Of 2,466 ft. of development completed 713 ft., or 29 per cent, was in ore averaging 11.5 dwt. over 65 in. There has been a further reduction in costs since the end of the financial year amounting to a little over 1s. 6d. per ton.

The most important event during the year was the acquisition of the Paringa leases. The orebodies in the Paringa leases can be worked much more economically as part of Gold Mines of Kalgoorlie than they could be by the Paringa Company operating alone. In consequence, we expect that substantial tonnages from known lodes will be profitable for this company to mine. In addition, these leases bring under the control of Gold Mines of Kalgoorlie (Aust.) Limited most of the north-easterly extensions of the productive part of the Kalgoorlie field.

Our geological section has had continuously in hand the analysis of the conditions under which ore occurs in Kalgoorlie. Marked progress has been made over the last year. One of the features which has emerged is that the vicinity of the contact between the quartz dolerite and the calc schist in the Brownhill Syncline, and particularly along the eastern flank, is potentially a larger source of ore than had previously been thought.

The programme for opening up and prospecting this interesting area, which extends for a length from 3,000 to 4,000 ft. is now being examined. It seems probable that one of the Paringa shafts will be re-equipped and will gradually become the main haulage shaft for the northern part of the property.

In consequence of the added ore potential the output has been increased to 15,000 tons per four-weekly period, which is well within the capacity of the plant.

It has been found possible to increase the capacity of the mill at small cost by converting one of the ball mills to a rod mill and increasing the speed of the filters. During the year the circuit was changed from pre-cyanidation of the ore before flotation to post-cyanidation of the flotation tailings. This, together with the above alterations, resulted in a fall in costs of 1.5s. per ton.

The final call by Kalgoorlie Southern Gold Mines N.L. of 1s. per share was made payable on July 8. All shares, amounting to 170,000 shares, held in Kalgoorlie Southern Mines N.L. are now fully paid. A full account of progress in this interesting major prospect is given in the Annual Report, with accompanying plan, of that Company. It is considered that results to date fully justify continuance of the project.

The report was adopted.

KALGOORLIE SOUTHERN GOLD MINES NO LIABILITY

The third annual ordinary general meeting of Kalgoorlie Southern Gold Mines No Liability was held on September 9 in Melbourne.

Mr. G. Lindesay Clark, B.Sc., M.M.E. (the chairman), presided and said: This company has been testing the areas in Western Australia to the South of the Golden Mile by diamond drilling for a repetition of the Kalgoorlie system of ore veins. The recently issued Annual Report and Statement of Accounts review the information obtained to June, 1953. Four holes have been drilled, and the data obtained so far has confirmed the initial interpretations of the geology of the area.

The importance of this prospect, and the encouraging present phase of the investigation, warrant the following summary of the geological interpretation of the data so far assembled.

The Kalgoorlie Syncline, on either side of which the eastern and western Gold Mile lode system occur, has been located in all drill holes as it pitches southwards beneath Black Flag sediments, and a new fold, the Cavilier Syncline and Anticline, has been revealed by holes S.E.3 and S.E.4 to be forming to the west of the Kalgoorlie Syncline. This seems to follow the pattern typical of the whole Kalgoorlie field, and if, as seems likely, the Cavilier folding gains in strength going south, the Cavilier Syncline could be the host of a major ore occurrence.

The main ore bearing areas on the Golden Mile are surrounded by two types of altered rock, first a bleached quartz dolerite greenstone, and then, beyond this, a much more extensive zone of quartz dolerite greenstone. These features would be expected to surround any southern repetition of the Kalgoorlie orebodies, and well developed faulting should also be present.

ENCOURAGING RESULTS

The drilling so far carried out has proved that quartz dolerite greenstone, showing some bleaching and a general similarity to the host rock of the Kalgoorlie ore system, lies below the Black Flag sediments in the area drilled. There is, therefore, every encouragement to continue the testing. Hole S.E.3 encountered, in the Black Flag sediments, brecciated and bleached material with strong shearing. Some gold has been found in the drill cores, and although nothing of economic value has been cut, it is significant in indicating the presence of gold mineralization in the country tested.

The discovery of the Cavalier fold means there are three main possibilities: Firstly, the first major ore repetition may be in the Kalgoorlie folding; secondly, it may lie further south in the Cavalier fold, or thirdly, a smaller but important ore position may be found in the Kalgoorlie folding, with the prospect of a major repetition occurring further south in the Cavalier Syncline.

Hole S.E.4 is now being extended to test under the interesting section disclosed by Hole S.E.3. It is then proposed to make another test of the Kalgoorlie folding further south, starting the drilling far enough west to obtain a preliminary test of the Cavalier Syncline.

The report was adopted.

Mining Men and Matters

Mr. K. C. Acutt, Mr. R. L. Prain, and Mr. M. Van Weyenbergh have been appointed directors of Wankie Colliery.

Mr. A. G. Glenister has been re-elected chairman of the Malayan Chamber of Mines for the tenth year, and **Mr. W. M. Warren** has been re-elected vice-chairman.

H.R.H. The Duke of Edinburgh has graciously consented to open the Platinum Metals Exhibition at Grosvenor House on Monday, October 19.

Mr. W. M. Frames has been appointed assistant general manager of Central Mining and Investment Corporation and **Mr. P. H. Anderson** has been appointed a manager in Johannesburg. **Mr. N. W. S. Lewin,** an assistant manager of the Corporation, has been transferred from London to Johannesburg.

The Tin Research Institute, London, has concluded a contract with the Instituto Politecnico in Italy, under which a study will be made on behalf of the Tin Research Institute of certain theoretical aspects of the electro-deposition of tin alloys.

The Cornish Institute of Engineers has announced that the first general meeting of members and associates will be held at the School of Mines, Camborne, on September 24 at 7.15 p.m., when **Mr. G. E. P. Roberts** will deliver his presidenial address entitled, " Mineral Workings and Associated Industries in Cornwall to-day."

CONSOLIDATED TIN SMELTERS

The twenty-fourth annual general meeting of Consolidated Tin Smelters, Ltd., was held in London on September 10th.

The following are extracts from the review of **Mr. Clifford Waite** (chairman and joint managing director) which was circulated with the Report and Accounts for the year ended March 31, 1953.

The net revenue of the parent company for the year is £315,053, out of which your directors have made appropriations similar to those made last year—£50,000 to general reserve and £50,000 to write down the investment in subsidiary companies. They recommend a dividend of 2s. 6d. per £1 Ordinary stock, the same rate as for the previous year.

The throughput of concentrates at our works showed a slight increase of 1.5 per cent when compared with last year, which, when all the relevant factors are considered, can I think be regarded as satisfactory.

The price of tin during the year under review was steadier but lower as compared with the year ended March 31, 1952.

POSITION IN BOLIVIA

The position in Bolivia during the last year was one which caused some concern to your directors. On June 2, 1952, Banco Minero was appointed by the Bolivian Government as the sole exporting agent for all minerals. This was followed in October by the creation of the Bolivian Mining Corporation with the object of developing mineral resources and of selling and exporting minerals and of the importing of machinery and mining requirements in accordance with the earlier Decree of June 2, 1952. Shortly after this the Bolivian Mining Corporation was authorized to supervise the management of the three large mining groups, while on October 31, 1952, these three mining groups were nationalized.

This final Decree of the Bolivian Government was one which clearly frustrated the contracts which we held with certain mining groups in Bolivia, a state of affairs which had been foreseen but which none the less gave your Board grave concern. In January of this year I proceeded to Bolivia to negotiate a new contract, and after discussions which were conducted on a most friendly basis with the Bolivian Government and the Bolivian Mining Corporation, I am happy to report that a new contract was made for the concentrates produced by those companies which formerly shipped to our subsidiary in Liverpool, and that shipments have now been resumed.

ECONOMY OF MALAYA

In Malaya the position has improved appreciably under the administration and control of General Templer, but there is still much to be done in that country before it returns to normality and the inhabitants and business community can move freely about the country without fear of molestation. There is certainly no room for complacency.

If the economy of Malaya is to be preserved it is imperative that the tin mining and rubber industries of the country be maintained in a healthy condition, and to this end it is of paramount importance that prospecting for new mining areas should be resumed at the earliest possible date. Even so, there will be a substantial time lag between the proving of such properties and the date on which they can be equipped and brought into production.

CHAIRMAN'S SUPPLEMENTARY REMARKS

Commenting on an article that appeared in *The Statist* of August 29, 1953, the chairman said: In this article readers are led to believe that we take a market risk on our stocks of tin and tin concentrates which are shown under Item 17 on page 6 of the accounts. In order to avoid any misapprehension in the minds of members of the company, I should like to make it clear that neither your company nor its operating subsidiaries takes a view of the tin market. It has always been our practice to purchase our tin concentrates on the basis of either the Singapore price or the London Metal Exchange price, whichever is applicable, on specified market days, and to sell the resultant tin on the same days. Thus it is our practice to " marry " our purchases of tin in concentrates with our sales of tin so that our market risk is negligible.

These remarks also apply to the tin concentrates having an approximate value of £4,800,000, to which reference is made in the accounts. This material either arrived at, or was in transit to, our works at March 31, 1953, but under the terms of our contracts with the producers of the tin concentrates the actual basis price for purchase was not due to be fixed until dates subsequent to March 31, 1953.

The report was adopted.

ANGLO AMERICAN CORPORATION OF SOUTH AFRICA, LTD.

(Incorporated in the Union of South Africa)

NOTICE TO HOLDERS OF ORDINARY SHARE WARRANTS TO BEARER

PAYMENT OF COUPON No. 37

With reference to the notice of declaration of dividend published in the Press on September 1, 1953, the following information is published for the guidance of holders of Share Warrants to Bearer:

The DIVIDEND on shares represented by SHARE WARRANTS TO BEARER will be PAID on or after October 22, 1953, after surrender of the appropriate coupons at BARCLAYS BANK (DOMINION, COLONIAL & OVERSEAS), Circus Place, London Wall, London, E.C.2, where listing forms may be obtained.

Coupons must be left four clear days for examination and may be presented any day (Saturdays excepted) between the hours of 11 a.m. and 2 p.m.

Coupons may also be presented for payment in French currency at Banque de l'Union Parisienne, 6 and 8, Boulevard Haussmann, Paris, 9e, or in Belgian currency at Banque Lambert, 11, rue des Colonies, Brussels.

Union of South Africa Non-Resident Shareholders' Tax will be deducted at the rate of 6.225 per cent from the dividend payable in respect of all Share Warrant coupons. United Kingdom Income Tax will also be deducted from Coupons presented for payment at Barclays Bank (D.C. & O.), London, unless Coupons are accompanied by Inland Revenue declarations. Where such deduction is made, the net amount of the dividend will be 1s. 3.972d. per share, viz.:—

	Per share s. d.
Amount of Dividend declared	2 0
Less: South African Non-Resident Shareholders' Tax at 1s. 2.94d. in the £	1.494
	1 10.506
Less: United Kingdom Income Tax at 4s. 6d. in the £ on the Gross amount of the dividend of 2s. 5.040d.	6.534
Net amount.....	1 3.972

By Order of the Board,
W. E. GROVES, London Secretary.

London Office:
11 Old Jewry, E.C.2.
September 14, 1953.

NOTE.—The Corporation has been requested by the Commissioners of Inland Revenue to state:—

Under the provisions of Section 348 and the 17th Schedule of the Income Tax Act, 1952, as amended by Section 26 of the Finance Act, 1953, relating to "unilateral relief" from double taxation, South African tax applicable to the dividend is allowable as a credit against the United Kingdom tax payable in respect of the dividend. The deduction of tax at the reduced rate of 4s. 6d. in the £ instead of at the standard rate of 9s. in the £ represents a **provisional** allowance of credit at the rate of 4s. 6d. in the £. The final rate of credit allowable to a particular shareholder depends on his personal rate of tax and it may be more or less than 4s. 6d. in the £. Revision of the credit involves a corresponding adjustment of the amount shown above as the gross amount of the dividend for United Kingdom tax purposes.

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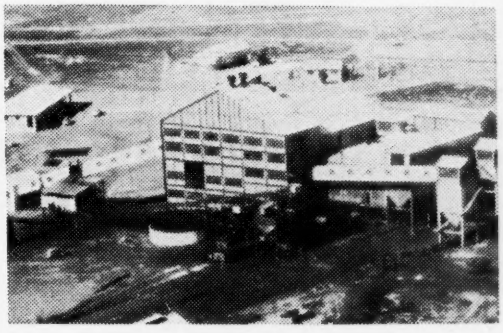
(IN VOLUNTARY LIQUIDATION)

Invitations to Tender for the Barvoys Coal Preparation Plant at Raleigh Colliery



Written tenders are invited for the purchase of the Barvoys Coal Preparation Plant pictured above which is housed in a steel-framed four-storey building with brick panels of approximately 65,000 square feet ground area with steel roof trusses and asbestos roof sheeting and/or for the spares for the plant which are held in stock. The plant for sale includes the reclaiming conveyor from the stock pile, but excluding the syntron feeds.

Alternatively, tenders are invited for the purchase of all or any of the component parts comprising the plant and/or for the spares for the plant which are held in stock.

Inspection of the plant and spares is invited by arrangement with the Consulting Electrical and Mechanical Engineer, The Central Mining and Investment Corporation Limited, The Corner House, P.O. Box 4563, Johannesburg, Transvaal, South Africa, from whom full particulars and schedule of the plant, including capacity and installed horse power, can also be obtained.

Tenders must be in writing and be enclosed in sealed envelopes marked "Tenders for Barvoys Coal Preparation Plant, Raleigh Colliery." They will be received by the Consulting Electrical and Mechanical Engineer, The Central Mining and Investment Corporation Limited, at the above address up to and including December 31, 1953, and cannot be withdrawn for a period of four weeks thereafter.

Tenders are subject to these conditions and to the conditions of sale obtainable from the Consulting Electrical and Mechanical Engineer mentioned above. The highest or any tenders will not necessarily be accepted.

RAND MINES, LIMITED,
Secretaries to the Liquidators.
per J. S. MITCHLEY.

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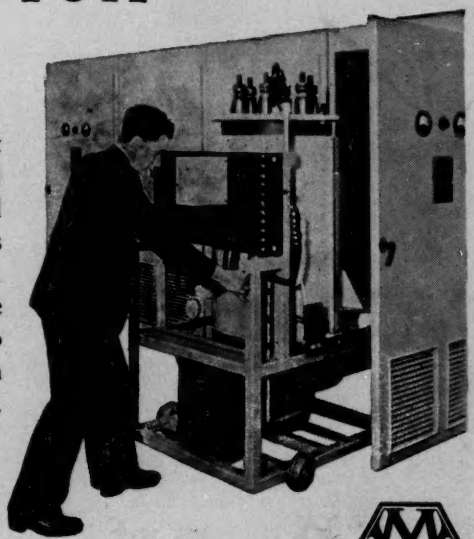

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